

HB

358

HOUSE COMMITTEE REPORT

(11)

Date Referred: February 7, 1990

FURTHER REFERRALS:

Date of Committee Action: 2-13-90

The FINANCE Committee considered:

SSHB 358

SS HOUSE BILL NO. 358 THERMAL & LIGHTING STNDS/ST FINANCED BLDG
 "An Act establishing minimum thermal and lighting energy standards applicable to residential buildings that are constructed or purchased with state financial assistance, and excluding commercial and industrial buildings from the class of buildings to which state thermal and lighting standards apply; and providing for an effective date."

RECOMMENDATIONS:

- be replaced with CSSSH 358 (AN) the same title
- have attached amendment(s) a new title
- do pass
- do not pass
- no recommendation
- individual recommendations
- additional referral to the _____ Committee

ADOPTS: _____ letter of intent

ATTACHES NEW FISCAL NOTE(S):
 (Dept)

APPROVES PREVIOUS:
 (Date/Dept)

- fiscal impact _____
- zero fiscal note _____
- zero with analysis _____

- fiscal note(s) _____
- zero fiscal note(s) PRA
- zero fn/analysis _____

SIGNING DO PASS:

SIGNING:

(Check approp. column)

Do Not Pass No Rec Amend

Ronald J. Larson LARSON
Key Wallis WALLIS
Cliff Swackhammer SWACKHAMMER
Al Koponen KOPONEN
Jack Brown BROWN
Paul Shultz SHULTZ

Name	Do Not Pass	No Rec	Amend
<u>Greg Hoffman</u> HOFFMAN	x		
<u>Tom Reiger</u> REIGER	/		
<u>W. B. Phillips</u> PHILLIPS	/		
<u>Thomas Barnes</u> Barnes	/		

Greg Hoffman
 Chairman's Signature
Ronald J. Larson

FISCAL NOTE

REQUEST:

Revision Date: _____
Title: "An Act..thermal & lighting energy standards..."
Sponsor: Reps Brown, M.Davis, MacLean, etc
Requestor: _____

Agency Affected: Community & Regional Affairs
BRU: _____
Components: _____

EXPENDITURES/REVENUES: (Thousands of Dollars)

OPERATING	FY 91	FY 92	FY 93	FY 94	FY 95	FY 96
PERSONAL SERVICES						
TRAVEL						
CONTRACTUAL						
SUPPLIES						
EQUIPMENT						
LAND & STRUCTURES						
GRANTS, CLAIMS						
MISCELLANEOUS						
TOTAL OPERATING	-0-	-0-	-0-	-0-	-0-	-0-

CAPITAL						
---------	--	--	--	--	--	--

REVENUE						
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FUNDING: (Thousands of Dollars)

GENERAL FUND	-0-	-0-	-0-	-0-	-0-	-0-
FEDERAL FUNDS						
OTHER						
TOTAL	-0-	-0-	-0-	-0-	-0-	-0-

POSITIONS:

FULL-TIME	-0-	-0-	-0-	-0-	-0-	-0-
PART-TIME						
TEMPORARY						

ANALYSIS : (Attach a separate page if necessary)

There is no fiscal effect for FY 90.

Prepared by: *Jim Besman* Phone: 465-4750
Division: Municipal & Regional Assistance Date: 2/2/90
Approved by Commissioner: *Y. and G. Palmer* Date: 2/2/90
Agency: Community & Regional Affairs

Distribution (by preparer):
Legislative Finance
Legislative Sponsor
Requestor
Office of Management and Budget.
Impacted Agency(ies)

Adopted

2/13/90
Rep. Kay Brown

AMENDMENTS TO CS SS HB 358 (C&RA)
House Finance Committee

Amendment 1: Language Changes in Reference to AHFC Loans

Changes in the following places:

Page 5, line 28

Page 8, line 19

Page 8, line 20

Purpose: In response to comments received from AHFC, these small wording changes are proposed to more precisely reflect AHFC's practices as financier of residential buildings.

Amendment 2: Title Amendment

Amend title to broaden:

"An Act relating to thermal and lighting standards; and providing for an effective date."

Purpose: The title as written is very narrow and should be broad enough to accommodate appropriate amendments, perhaps during future consideration in the Senate, without need for a title amendment.

Original sponsor(s): REP. BROWN, M.Davis, MacLean, Hudson, Koponen, Goll

1 IN THE HOUSE

BY THE FINANCE COMMITTEE

2 CS FOR SPONSOR SUBSTITUTE FOR HOUSE BILL NO. 358 (Finance)

3 IN THE LEGISLATURE OF THE STATE OF ALASKA

4 SIXTEENTH LEGISLATURE - SECOND SESSION

5 A BILL

6 For an Act entitled: "An Act relating to minimum thermal and lighting
7 energy standards; and providing for an effective
8 date."

9 BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF ALASKA:

10 * Section 1. AS 18.56.090 is amended to read:

11 Sec. 18.56.090. GENERAL POWERS. In addition to other powers
12 granted in this chapter, the corporation may, for the purpose of
13 providing housing for persons of lower and moderate income or persons
14 located in remote, underdeveloped, or blighted areas of the state and
15 for its other corporate purposes,

16 (1) [REPEALED

17 (2)] make or participate in the making of mortgage loans to
18 sponsors, developers, builders, and purchasers of residential housing,
19 if the corporation determines that

20 (A) mortgage loans are not otherwise available, wholly
21 or in part, from private lenders upon reasonably equivalent terms
22 and conditions; and

23 (B) the residential housing for which the mortgage
24 loans are made complies with applicable provisions of AS 18.56.-
25 096(c) and the applicable thermal and lighting energy standards
26 of AS 46.11.040;

27 (2) [(3)] purchase or participate in the purchase of mort-
28 gage loans made to sponsors, developers, builders, owners, and pur-
29 chasers of residential housing, if the corporation

1 (A) has given approval before the initial making of
2 the loan and has determined that mortgage loans were, at the time
3 the approval was given, not otherwise available, wholly or in
4 part, from private lenders upon reasonably equivalent terms and
5 conditions, or

6 (B) has determined that

7 (i) the purchase or participation will result in
8 additional residential housing, taking into account without
9 limitation such factors as reinvestment of the proceeds of
10 the sale in additional mortgage loans, increased avail-
11 ability of mortgage loans insured by the federal government,
12 its agencies or departments, the reduction, if any, of
13 interest payments to be made with respect to mortgage loans,
14 or such other factors as will tend to increase or improve
15 the supply of residential housing within the state; and

16 (ii) the residential housing covered by the mort-
17 gage loan complies with applicable provisions of AS 18.56.-
18 096(c) and the applicable thermal and lighting energy stan-
19 dards of AS 46.11.040;

20 (3) [(4)] make partial rental payments and mortgage inter-
21 est payments under a contract with any housing owner if the payments
22 will be applied to decrease rental or mortgage interest charges of
23 persons of lower and moderate income or owners or purchasers of res-
24 idential housing in remote, underdeveloped, or blighted areas of the
25 state;

26 (4) [(5)] make loans from the housing development fund;

27 (5) [(6)] collect and pay reasonable fees and charges in
28 connection with making, purchasing, and servicing its mortgages,
29 loans, notes, bonds, certificates, commitments, and other evidences of

1 indebtedness;

2 (6) [(7)] acquire real property, or any interest in real
3 property, in its own name, by purchase, transfer, or foreclosure, when
4 the acquisition is necessary or appropriate to protect any loan in
5 which the corporation has an interest; sell, transfer, and convey the
6 property to a buyer; and, if the sale, transfer, or conveyance cannot
7 be effected with reasonable promptness or at a reasonable price, rent
8 or lease the property to a tenant pending the sale, transfer, or
9 conveyance;

10 (7) [(8)] sell, at public or private sale, to any purchas-
11 er, including the Federal National Mortgage Association, all or any
12 part of a mortgage or other instrument or document securing a con-
13 struction, land development, mortgage, or temporary loan of any type
14 permitted by this chapter;

15 (8) [(9)] purchase, in order to meet the requirements of
16 the sale of its mortgages to the Federal National Mortgage Associa-
17 tion, stock of the Federal National Mortgage Association;

18 (9) [(10)] procure insurance against any loss in connection
19 with its operation;

20 (10) [(11)] consent to the modification of the rate of
21 interest, time of payment of any installment of principal or interest,
22 or any other terms, of the mortgage loan, mortgage loan commitment,
23 construction loan, temporary loan, contract, or agreement of any kind
24 to which the corporation is a party;

25 (11) [(12)] borrow money as provided in this chapter to
26 carry out and effectuate its corporate purposes; and issue its obliga-
27 tions as evidence of borrowing;

28 (12) [(13)] include in any borrowing the amounts necessary to
29 pay financing charges, interest on the obligations for a period not

1 exceeding one year after the date on which the corporation estimates
2 funds will otherwise be available to pay the interest, consultant,
3 advisory and legal fees, and other expenses that are necessary or
4 incident to this borrowing;

5 (13) [(14)] under AS 18.56.088, adopt and publish regula-
6 tions respecting its lending programs and other regulations that are
7 necessary to effectuate its purposes;

8 (14) [(15)] provide technical and advisory services to
9 sponsors, builders, and developers of residential housing and to
10 residents of it;

11 (15) [(16)] promote research and development in scientific
12 methods of constructing low-cost and energy-efficient residential
13 housing of high durability;

14 (16) [(17)] make and execute agreements, contracts, and
15 other instruments necessary or convenient in the exercise of the
16 powers and functions of the corporation under this chapter, including
17 contracts with any person, firm, corporation, governmental agency, or
18 other entity;

19 (17) [(18)] receive, administer, and comply with the condi-
20 tions and requirements respecting any appropriation or gift, grant, or
21 donation of property or money;

22 (18) [(19)] sue and be sued in its own name;

23 (19) [(20)] adopt an official seal;

24 (20) [(21)] adopt bylaws for the regulation of its affairs
25 and the conduct of its business and adopt regulations and policies in
26 connection with the performance of its functions and duties;

27 (21) [(22)] employ fiscal consultants, engineers, attorneys,
28 real estate counselors, appraisers, and other consultants and employ-
29 ees that may be required in the judgment of the corporation, and fix

1 and pay their compensation from funds available to the corporation;

2 (22) [(23)] do all acts and things necessary, convenient, or
3 desirable to carry out the powers expressly granted or necessarily
4 implied in this chapter;

5 (23) [(24)] invest or reinvest, subject to its contracts with
6 noteholders and bondholders, any money or funds held by the corpora-
7 tion in any obligations or other securities or investments in which
8 banks or trust companies in the state may legally invest funds held in
9 reserves or sinking funds or any funds not required for immediate
10 disbursement, and in certificates of deposit or time deposits secured
11 by obligations of, or guaranteed by, the state or the United States;

12 (24) [(25) REPEALED

13 (26) REPEALED

14 (27) REPEALED

15 (28)] purchase a mortgage loan made to refinance an existing
16 mortgage loan, without regard to whether the corporation holds the
17 existing mortgage loan, as long as the interest rate and fees charged
18 to the borrower are sufficient to fully reimburse the corporation for
19 all costs incurred by the corporation in purchasing the mortgage loan
20 and as long as the borrower will be in compliance with AS 18.56.-
21 096(a)(6) after purchase of the mortgage loan by the corporation.

22 * Sec. 2. AS 18.56.096 is amended by adding a new subsection to read:

23 (c) The corporation may not make, participate in the making of,
24 purchase, or participate in the purchase of a loan for a residential
25 building if construction of the building begins after December 31,
26 1990, unless the building complies with the thermal and lighting
27 energy standards required by AS 46.11.040. The corporation

28 (1) may adopt regulations to implement this subsection; and

29 (2) shall, by regulation, establish

1 (A) procedures by which the person responsible for the
2 construction of the building may demonstrate that the building
3 complies with the thermal and lighting energy standards, includ-
4 ing

5 (i) self-certification, if the contractor respon-
6 sible for the building construction provides satisfactory
7 evidence that the contractor has completed a training pro-
8 gram of the Alaska Craftsman Home Program and the training
9 program is satisfactory to the commissioner of community and
10 regional affairs;

11 (ii) submission of the certificate of a registered
12 architect, registered engineer, or a building inspector, and
13 the architect, engineer, or building inspector has completed
14 a training program of the Alaska Craftsman Home Program and
15 the training program is satisfactory to the commissioner of
16 community and regional affairs;

17 (iii) submission of the certificate of occupancy
18 issued by the municipality in which the building is located,
19 if the certificate is issued by a municipality in which the
20 municipal building code meets or exceeds the thermal and
21 lighting energy standards, as determined by the commissioner
22 of community and regional affairs;

23 (iv) another method approved by the commissioner
24 of community and regional affairs in regulations adopted by
25 the commissioner after consultation with the executive
26 director of the corporation; and

27 (B) criteria by which the energy conservation stan-
28 dards may be met; for purposes of this subparagraph, the residen-
29 tial building complies with the energy standards if the residence

1 has received a rating under the rating system developed by Energy
2 Rated Homes of Alaska if, in the judgment of the commissioner of
3 community and regional affairs, the rating meets or exceeds the
4 thermal energy standards required by AS 46.11.040.

5 * Sec. 3. AS 18.56.105 is amended to read:

6 Sec. 18.56.105. ALLOCATION OF LENDING ACTIVITIES. The corpora-
7 tion shall designate regions within the state which in the aggregate,
8 encompass the entire state. In participating in the making or pur-
9 chasing of loans under AS 18.56.090(1) and (2) [AS 18.56.090(2) AND
10 (3)] or under AS 18.56.100, the corporation shall make its money
11 available through the private financial institutions in the state
12 within each region designated by the corporation under this section.
13 The corporation shall allocate its money among the regions on the
14 basis of recent and future anticipated lending activity as well as the
15 potential need for the loans in each region and may reallocate its
16 money among the regions as it considers appropriate to reflect changes
17 in lending activity or need in the regions.

18 * Sec. 4. AS 18.56.110(g) is amended to read:

19 (g) Notwithstanding AS 18.56.090(11) [AS 18.56.090(12)] and (a)
20 of this section, the corporation may not issue bonds in any 12-month
21 period beginning after June 30, 1983, in an amount that exceeds the
22 amount of bonds authorized to be issued during the preceding period,
23 unless a different amount is authorized by the legislature. This
24 subsection does not apply to the issuance by the corporation of re-
25 funding bonds or to the issuance by the corporation of bonds the
26 proceeds of which are intended to be used to refinance mortgage loans
27 held by the corporation.

28 * Sec. 5. Section 1, ch. 83, SLA 1980, is amended to read:

29 Section 1. DECLARATION OF POLICY. It is the policy of the state

1 to encourage and facilitate the implementation of energy conservation
2 measures relating to in-state energy use. This policy shall be imple-
3 mented by

4 (1) the state setting an example of wise and efficient
5 energy use, by designing and managing public buildings and their
6 energy systems to meet appropriate standards for energy efficiency;

7 (2) providing incentives for the design and modification of
8 residential [COMMERCIAL, AND INDUSTRIAL] buildings to accomplish
9 maximum energy efficiency; and

10 (3) establishing mandatory energy efficiency standards for
11 buildings purchased or constructed with state financial assistance.

12 * Sec. 6. AS 46.11.040 is amended to read:

13 Sec. 46.11.040. APPLICABILITY OF THERMAL AND LIGHTING ENERGY
14 STANDARDS TO RESIDENTIAL [PRIVATE] BUILDINGS. State financial assis-
15 tance may not be approved or granted for the construction of or pur-
16 chase of a loan for a [NEW] residential [OR COMMERCIAL] building if
17 construction of the building begins after December 31, 1990 [1980],
18 unless

19 (1) the building is in compliance with thermal and lighting
20 energy standards;

21 (2) the building is in compliance with the building code of
22 a municipality and the standards for thermal and lighting energy of
23 the municipal building code meet [MEETS] or exceed [EXCEEDS] the
24 thermal and lighting energy standards;

25 (3) the building

26 (A) is constructed under an exception to the municipal
27 building code granted because the exception will result in in-
28 creased energy efficiency; or

29 (B) is located or is to be located in an area where

1 thermal and lighting energy standards are not justified because
2 of the high cost of implementation of the standards, as deter-
3 mined under regulations adopted by the commissioner of community
4 and regional affairs; or

5 (4) the applica. . agrees, in writing, that the building
6 will be brought into compliance with thermal and lighting energy
7 standards within one year of conveyance.

8 * Sec. 7. AS 46.11.900 is amended to read:

9 Sec. 46.11.900. DEFINITIONS. In this chapter

10 (1) "alternative energy system"

11 (A) means a source of thermal, mechanical, or elec-
12 trical energy that [WHICH] is not dependent on oil or gas or a
13 nuclear fuel for the supply of energy for space heating and
14 cooling, refrigeration and cold storage, electrical power,
15 mechanical power, or the heating of water;

16 (B) includes

17 (i) an alternative energy property as defined by
18 [SEC. 48(1)(3)(A) OF THE INTERNAL REVENUE CODE () 26 U.S.C.
19 48(1)(3)(A) []]; and

20 (ii) a method of architectural design and construc-
21 tion that [WHICH] provides for the collection, storage, and
22 use of direct radiation from the sun; [AND

23 (iii) REPEALED]

24 (2) "department" means the Department of Commerce and
25 Economic Development;

26 (3) "energy audit" means a determination and written sum-
27 mary prepared under 42 U.S.C. 8216(b) [42 U.S.C. 8216(b)(1)(A),
28 (SEC. 215, P.L. 95-619, NATIONAL ENERGY CONSERVATION POLICY ACT)] of

29 (A) the energy consumption characteristics of a

1 building, including the size, type, and rate of energy consump-
2 tion of major energy consuming systems of the building and the
3 climate characterizing the region where the building is located;
4 and

5 (B) the energy conservation and cost savings likely to
6 result from appropriate energy-conserving maintenance and operat-
7 ing procedures and modifications, including the purchase and
8 installation of energy-related fixtures; for purposes of this
9 subparagraph when a fossil fuel is the energy source, the energy
10 cost savings shall be determined with reference to the projected
11 price of that fossil fuel over a 10-year period;

12 (4) "financial institution" means a bank, trust company,
13 savings bank, savings and loan association, or credit union;

14 (5) "life-cycle cost" means the total cost of owning,
15 operating, and maintaining a building over its useful life, including
16 its energy and fuel costs, determined on a basis of a systematic
17 evaluation and comparison of alternative building systems, except that
18 in the case of leased buildings the life-cycle cost shall be calculat-
19 ed over the effective remaining term of the lease;

20 (6) ["NEW BUILDING" MEANS A BUILDING THE CONSTRUCTION OF
21 WHICH BEGINS AFTER DECEMBER 31, 1980;

22 (7)] "public building" means a building owned or controlled
23 and held by the state for government or public use;

24 (7) [(8)] "state financial assistance" means a loan, grant,
25 guarantee, insurance, payment, rebate, subsidy, or other form of state
26 assistance other than aid under AS 05.35.010 - 05.35.070, AS 14.11.-
27 100 - 14.11.135, and AS 29.60, including the purchase by a state
28 agency of a loan to finance the construction or purchase of a [NEW]
29 residential [, COMMERCIAL, OR INDUSTRIAL] building;

1 (8) [(9)] "thermal and lighting energy standards" means the
2 thermal and lighting energy standards .

3 (A) established by the American Society of Heating,
4 Refrigeration, and Air Conditioning Engineers as revised

5 (i) [(A)] by the commissioner of transportation
6 and public facilities under AS 44.42.020(a) for public
7 facilities; or

8 (ii) [(B)] by the commissioner of community and
9 regional affairs for buildings and structures that are not
10 public facilities; or

11 (B) developed in regulations adopted

12 (i) by the commissioner of transportation and
13 public facilities under AS 44.42.020(a) for public facili-
14 ties; or

15 (ii) by the commissioner of community and regional
16 affairs for buildings and structures that are not public
17 facilities.

18 * Sec. 8. APPLICATION OF THERMAL AND LIGHTING ENERGY STANDARDS TO
19 PROGRAMS FOR RESIDENTIAL HOUSING THAT IS CONSTRUCTED OR PURCHASED WITH
20 STATE FINANCIAL ASSISTANCE. Persons responsible for administration and
21 management of programs in which state assistance is provided for the pur-
22 chase or construction of residential buildings are encouraged to adopt and
23 enforce the compliance standards and methods of AS 18.56.096(c)(2), added
24 by sec. 2 of this Act, within the housing programs for which they are
25 responsible.

26 * Sec. 9. This Act takes effect immediately under AS 01.10.070(c).
27
28
29

A M E N D M E N T

1

OFFERED IN THE HOUSE

BY REP. BROWN

TO: C S S S H B 3 5 8 (C & R A)

Page 5, line 28, after "a":

Insert "loan for a"

Page 8, line 19, after "construction":

Insert "of"

Page 8, line 20, after "a":

Insert "loan for a"

A M E N D M E N T

2

OFFERED IN THE HOUSE

BY REP. BROWN

TO: CSSSHB 358(C&RA)

Page 1, line 6:

Delete "establishing minimum"

Insert "relating to"

Page 1, lines 7 - 11:

Delete "applicable to residential buildings that are constructed or purchased with state financial assistance, and excluding commercial and industrial buildings from the class of buildings to which state thermal and lighting standards apply"

2/9/90
Rep. Kay Brown

SECTIONAL ANALYSIS

CS SS HB 358 (C&RA) - Minimum Thermal Energy Standards

Section 1. Amends the existing "General Powers" provisions (AS 18.56.090) of the Alaska Housing Finance Corporation (AHFC) to clarify that new homes financed with AHFC mortgage loans must comply with minimum thermal standards.

Section 2. Amends current AHFC statutes (AS 18.56.096) to provide that the corporation may not finance new homes constructed after December 31, 1990 unless the building meets minimum thermal energy standards.

Specific means are identified by which builders can demonstrate compliance with the minimum thermal standard. Alternatives are provided, including:

- self-certification, provided the contractor provides evidence of having completed the Alaska Craftsman Home Program;
- an engineer's, architect's or building inspector's certification that the standard has been met, provided the person making this certification has completed the Alaska Craftsman Home Program;
- where a local government has an equivalent or higher thermal standard within its code, a copy of the Certificate of Occupancy stating compliance with the local code;
- a showing that the home has received a rating from Energy Rated Homes of Alaska demonstrating equivalency with the state standard; or
- another method approved by the Commissioner of the Department of Community and Regional Affairs in consultation with the Executive Director of AHFC.

Section 3. Technical correction; conforming amendment resulting from the numbering changes in Section 1.

Section 4. Technical correction; conforming amendment resulting from the numbering changes in Section 1.

Section 5. Amendment to the original Declaration of Policy section to delete "commercial and industrial" buildings.

Section 6. Amendment to existing law (AS 46.11.040) to clarify that "state financial assistance" includes the purchase of new homes (i.e., home mortgages financed by AHFC) constructed after December 31, 1990. Clarification of existing statute to eliminate ambiguity concerning refinancing and make it clear that after December 31, 1990 state financial assistance would be conditioned on meeting the minimum standard. Clarification of existing statute to provide that a building is considered to be in compliance with the state standard if it complies with a local building code that is at least equivalent to the state minimum thermal energy standard.

Section 7. Amends the definitions section applicable to the chapter. Changes are made to reflect proper citations for the federal tax code and referenced federal law. Because "new building" is defined in context (see Section 2), the existing, separate definition is repealed as redundant. Clarification of the statutory authority of the Department of Community and Regional Affairs to develop the thermal standards for new residential homes built with state financial assistance and for the Department of Transportation and Public Facilities in the case of public facilities.

Section 8. State housing programs other than those administered by AHFC are encouraged to adopt the compliance methods identified in Section 2.

Section 9. Immediate effective date.

STEVE COWPER, GOVERNOR

EPT. OF COMMUNITY & REGIONAL AFFAIRS

OFFICE OF THE COMMISSIONER

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August 24, 1989

POSITION PAPER

RE: House Bill 358 - "An Act relating to thermal and lighting standards applicable to residential, commercial, and industrial buildings ..."

SPONSORS: Representatives Brown and M. Davis

Program Effects of Bill

House Bill 358 proposes to amend statutes that mandate the development of state thermal and lighting standards for new residential, commercial and industrial buildings constructed or purchased with state financial assistance. The bill corrects the language of the existing statutes that Alaska Superior Court has ruled restricts the application of the standard to only the construction of buildings. Under this restrictive interpretation, the standard applies to a small minority of rural housing assistance loans and exempts Alaska Housing Finance Corporation and urban areas of the state. As a rule state financial assistance for homes only covers the purchase of the home by the consumer and not the construction by the builder.

AS 46.11.040, AS 46.11.900(8), and AS 46.11.900(9) are amended to include financial assistance for the purchase of new buildings as well as construction.

AS 46.11.040 is also amended to include new industrial buildings in the standard's coverage.

Comments

The Department strongly supports this bill because it corrects existing statutory language preventing the application of the standard to state financed new homes.

Energy is a critical concern in housing for all Alaskans. The cost of energy is usually one of the largest costs in terms of homeownership. A study by the Rural Alaska Community Action Program reported that in eight rural villages 16 to 37 percent of families' incomes were spent on energy, and 68 percent of Alaskans' energy bills are spent on staying warm.

Too often in the past, homes have been constructed that are not appropriate to the state's climate. While this is true statewide it is particularly true in rural Alaska where the 1988 Alaska Rural Housing Needs Assessment reported that an appalling 28 percent of rural homes could not maintain an inside temperature of 70 degrees Fahrenheit. This problem is not solely in rural Alaska. During this past winter's cold snap, homeowners across the state experienced problems keeping their homes warm.

An energy standard is one of the most important factors in assuring energy efficiency in new homes. Most homebuyers are not involved in construction decisions about the homes in which they will live and for which they pay the heating bills. In addition, many important energy features are difficult and not economical to add later.

The research conducted by the University of Alaska's Institute of Social and Economic Research and the Department of Community and Regional Affairs estimates that a home built to the state's standard will reduce heating bills by an average of 37 percent statewide over a home built to current practice. For a village in the Interior, for example, a home built to the state's standard would cost an estimated \$2,363 in additional construction and labor costs over a home built to HUD's minimum standard, but would cost \$568 less to heat in the first year and over a 30 year period would save an estimated \$9,453. This would have a simple payback in terms of energy savings of four years. It is estimated that if all of the 190 HUD homes that are to be built this year were constructed to the state standard it would reduce the heating bills of the low income families living in them by \$94,000 annually. The standard is economical for the urban portions of the state as well. A recent analysis completed by the Institute of Social and Economic Research found that in Anchorage installing R-3 windows over R-2 are as lucrative to the homeowner as an investment in stocks or bonds paying 16.7 percent.

The Alaska Legislature recognized this in 1980 when they mandated the development of a residential thermal standard and stated that any state financed construction must meet the standard.

Presented by: The Manager
Introduced: 02/05/90
Drafted by: Energy Advisory
Committee

RESOLUTION OF THE CITY AND BOROUGH OF JUNEAU, ALASKA

Serial No. 1424

A RESOLUTION SUPPORTING THE ADOPTION OF HOUSE BILL NO. 358 WHICH WILL CLEAR THE WAY FOR IMMEDIATE IMPLEMENTATION OF THE STATE ENERGY STANDARDS WHICH INCLUDE IMPROVEMENTS TO THE ENERGY EFFICIENCY AND SAFETY OF NEW RESIDENTIAL UNITS CONSTRUCTED OR PURCHASED IN JUNEAU WITH STATE FINANCIAL ASSISTANCE.

WHEREAS, in February 1985, Juneau became the first municipal government in Alaska to adopt cost effective minimum residential thermal standards for all new housing, and

WHEREAS, implementation of these standards has helped ensure affordable, safe, comfortable, and healthy homes within our city in addition to reducing the flow of cash out of Juneau for fuel, and

WHEREAS, the cold climate and high energy costs in Alaska pose an unnecessary drain on the economic well-being of homeowners in poorly built houses, and

WHEREAS, financial programs, such as "Energy Rated Homes," are being implemented in Alaska to reward buyers of energy efficient homes, promote local employment and protect the financial interests of builders who provide quality housing, and

WHEREAS, conservation of energy serves the national interest by reducing pollution, gases which contribute to the greenhouse effect, acid rain, and the trade deficit for imported oil, and

WHEREAS, the Assembly's Energy Advisory Committee has endorsed the residential energy standards developed for Alaska by the Department of Community and Regional Affairs and urges the Assembly to adopt this resolution;

NOW, THEREFORE, BE IT RESOLVED BY THE ASSEMBLY OF THE CITY AND BOROUGH OF JUNEAU, ALASKA:

1. That the Assembly supports the adoption of House Bill No. 358 to ensure that new housing in Alaska constructed or purchased with state financial assistance meets the residential energy standards adopted by the Department of Community and Regional Affairs so as to provide housing that is warm, healthy, and affordable to own.

2. Effective Date. This resolution shall be effective immediately upon adoption.

Adopted this day of 1990.

Mayor

Attest:

Clerk

*Adopted 2/12/90
Unanimous*



Alaska State Legislature

HOUSE OF REPRESENTATIVES

Official Business

P.O. Box V
State Capitol
Juneau, Alaska 99811

TO: Representative Richard Shultz

FROM: Representative Kay Brown *Kay*

DATE: February 13, 1990

SUBJ: HB 358 - Log Homes and Minimum Thermal Standards

The purpose of this memorandum is to respond to the concern you raised regarding the potential effect establishment of a minimum thermal standard could have on the construction of new log homes.

During development of the proposed state standard by the Department of Community and Regional Affairs (DCRA) this concern was specifically addressed. Axel Carlson, Professor Emeritus at the University of Alaska Fairbanks assisted the DCRA staff with an analysis of the proposed standard. As the UAF/Cooperative Extension Service instructor for log home construction for over ten years, Carlson has both the practical as well as academic training to evaluate this issue.

Using the "building energy budget method" provided for by the proposed standard, Carlson calculated that a log house with 9" logs, 18" of ceiling insulation, 12" fiberglass floor insulation supplemented with 2" of rigid foam insulation and a window/wall area of 8% has an annual heat loss budget of 54,341 BtuH/SF which meets the standard. Of course, thicker than 9" logs would have a correspondingly higher R value in the walls, reducing the amount of insulation required needed for the ceiling or floor and/or allow for increased window area. As a rough rule of thumb, each inch of log thickness corresponds to about 1 "R".

Regarding the issue of a vapor barrier, the proposed standard allows for the use of commercially available vapor retarder paints and sealants with a sufficient permeability rating. In short, the issue of log homes was specifically considered during development of the proposed state standard and the standard was developed to accommodate this traditional Alaska construction technique.

Finally, it is important to remember that the minimum thermal standards that would be established pursuant to the passage of CS SS HB 358 (C&RA) would only apply to new homes constructed after December 31, 1990 built with state financial assistance. As a practical matter, it appears that CS SS HB 358 (C&RA) would have little impact on the construction of new log homes because the number of new log homes financed by the state is miniscule according to the loan manager of the state's rural housing assistance loan program.

Finally, I would note that passage of CS SS HB 358 (C&RA) would not have the effect of immediately implementing the proposed state standard. Rather passage of CS SS HB 358 (C&RA) would lead to another round of public hearings, review and comment on the proposed state standard through the regulation adoption process. Any specific technical concerns about the proposed standard could be addressed at that time.

I hope that this information responds to your concerns.



Alaska State Legislature

HOUSE OF REPRESENTATIVES

Official Business

P.O. Box V
State Capitol
Juneau, Alaska 99811

TO: Representative Ron Larson, Co-Chair
Representative Lyman Hoffman, Co-Chair
House Finance Committee

FROM: Representative Kay Brown *KB*

DATE: February 9, 1990

SUBJ: CS SS HB 358 (C&RA) - Minimum Thermal Energy Standards

Thank you for scheduling CS SS HB 358 (C&RA), legislation that would require future new housing built with state financial assistance after December 31, 1990 to meet at least minimum energy efficiency standards.

The Need for Minimum Thermal Energy Standards

The arguments in support of minimum standards are compelling:

- A survey of eight rural villages found that 16 to 37% of family income is spent on energy while a 1988 "Alaska Rural Housing Needs Assessment" found that 36% of rural homes could not maintain an indoor temperature of 70 degrees during the cold winter months.
- An audit of 714 HUD housing units concluded that "projects are being developed that are infeasible, improperly designed, and inadequately constructed" noting that many of the the rural housing units being constructed were generally unsuited for the harsh Alaskan environment (in some homes interior walls were sheathed in ice during the winter).
- The State of Alaska is the financier (and now owner through AHFC) of thousands of repossessed residential properties. Due to poor building practices these REOs have required substantial funds to repair and upgrade simply to make them marketable.

136

- Typical home buyers do not have -- nor can they reasonably be expected to have -- the kind of technical expertise necessary to determine whether a home has been built to reasonable energy efficiency standards.
- Finally, it is far more costly (and in some cases physically impossible) to "retrofit" a home once the basic structure is complete. Unless attention is given to energy efficiency at the time of initial design and construction, significant cost-effective energy efficiency opportunities will be irretrievably lost.

A point worth emphasizing is that under HB 358 the state minimum thermal standards *would apply only to future new homes built with state financial assistance.*

Legislative History of the Alaska Thermal Energy Standard

In 1980, the Alaska Legislature recognized the need for minimum energy efficiency standards by enacting Chapter 83 SLA 1980. This legislation provided for the development and adoption of minimum thermal and lighting standards (AS 46.11.010 -.900) for new structures built with "state financial assistance."

Between 1983 and 1988, the Department of Community and Regional Affairs undertook an extensive public process with the help of an Advisory Committee which included several representatives of the housing industry to develop an appropriate "regionalized" Alaska standard for new state-financed residential construction. The committee developed a consensus recommendation concerning the proposed standard. However, just prior to the Standard becoming effective last October a lawsuit was filed that exploited a drafting technicality in the original 1980 law.

Briefly, the original 1980 legislation had a "Declaration of Policy" section clearly stating the Legislature's intent to establish "mandatory energy efficiency standards for buildings purchased or constructed with state financial assistance" (emphasis added), the language actually codified into law only referenced financing "for the construction of" new structures. The effect of the Superior Court ruling -- limiting the applicability of the Standard to direct construction lending -- renders the current statute almost meaningless since only a small portion of state financial assistance takes the form of direct construction lending. Pending appeal to the Alaska Supreme Court, implementation of the Standard has been enjoined.

HB 358 was introduced to reaffirm the clear legislative objective of requiring that new homes financed through AHFC meet at least minimum thermal standards.

CS SS HB 358 (C&RA)

In summary, the major provisions of CS SS HB 358 (C&RA):

- explicitly reaffirm the original 1980 intent of the legislature that minimum thermal standards apply to homes constructed as well as financed through AHFC with state financial assistance;
- makes it clear that the thermal standards are intended to apply only to future new homes built with state-financial assistance homes (i.e., construction starting after December 31, 1990); and
- explicitly identifies several alternative means by which builders can demonstrate compliance with the standard, including self-certification.

Assuming CS SS HB 358 (C&RA) passes this session, the Department of Community and Regional Affairs would take the proposed minimum standard out for what I hope will be the final round of public hearings and comment. If any remaining technical concerns are identified at that time, appropriate changes can be made.

Nearly all states have some form of minimum standard. It is ironic that, Alaska -- the state with the most extreme cold-weather temperatures and the highest heating costs in the nation -- is without even minimum energy efficiency requirements. Although there will always be a certain faction of builders who object to any kind of minimum requirement, it should also be noted that a substantial number of Alaska homebuilders already construct homes that meet or exceed the proposed state minimum and these quality builders have expressed strong support for the standard.

In addition to these builders, this legislation and the need for minimum thermal standards is supported by other housing professionals and a broad cross section of utilities, local governments, labor groups, non-profits, consumer groups and individuals.

* * * * *

I look forward to the hearing on Tuesday. If you have any questions concerning HB 358, please let me know or contact Eric Myers of my staff at 465-4998.

attachments

2/9/90
Rep. Kay Brown

HB 358 - Minimum Thermal Energy Standards
Endorsements and Statements of Support

Alaska Center for the Environment
Alaska Community Development Corporation (Anchorage)
Alaska Federation of Natives
Alaska Health Project
Alaska Housing Finance Corporation
Alaska Housing Policy Development Committee
Alaska Public Interest Research Group
Alaska Rural Electric Cooperative Association
Alaska State AFL-CIO
Alaska State Employees Association
Alaska Village Electric Cooperative
Alaska Wilderness Alliance
Alaska Wildlife Alliance
Alaska Window (Fairbanks)
Alaska Chapter Sierra Club
Analysis North/Alaska Utility Consumer Advocate
Anchorage League of Women Voters
American Lung Association of Alaska
Anchorage Daily News
Anchorage Neighborhood Housing Services, Inc.
Anchorage Recycling Center
Architects Bisset/Simansko (Palmer)
Arctic Technical Services (Fairbanks)
Barrow Utilities and Electric Cooperative
Brandywine Homeowners Association (Eagle River)
Cedar Park Condominium Association (Anchorage)
Chugach Electric Association (Anchorage)
City of White Mountain
City of Brevig Mission
City of Nome
City of Koyuk
City of Shishmaref
City and Borough of Sitka
Denali Citizens Council
Dick Mueller Realty, Inc. (Kenai)
Dinyee Village Corporation (Stevens Village)
Dory and Associates (Nome)
Ellington Construction (Homer)
ENSTAR Natural Gas Company (Anchorage)
Ester Construction (Fairbanks)

2/9/90

Page 2

Rep. Kay Brown

Fairbanks North Star Borough
Golden Valley Electric Association (Fairbanks)
Greenpeace USA
Kotzebue Electric Association
Heat Loss Analysis, Inc. (Anchorage)
Home Energy Service (Juneau)
Kachemak Bay Conservation Society
Kodiak Island Mayors League
Low-Income Weatherization Policy Advisory Committee
McGlothlin Balivet Co. - Architects & Planners (Anchorage)
National Audubon Society
North Slope Borough
North and Northwest Alaska Mayors Conference
Nushagak Electric Co-operative, Inc. (Dillingham)
Older Alaskans Commission
Older Persons Action Group, Inc.
Raj Bhargava Associates/Engineering in Alaska (Anchorage)
Rotecki, Bill (Ketchikan)
Rural Alaska Community Action Program
Second Annual Rural Energy Conference Resolution
S.I.H. Inc. Weatherization (Fairbanks)
Southwest Alaska Municipal Conference
State of Alaska Energy Policy Task Force
Thermo-Kool of Alaska, Inc. (Anchorage)
Thompson, David (Fairbanks)
Tlingit & Haida Regional Electrical Authority
Trustees for Alaska
U.S. Department of Housing and Urban Development
Western Alaska Building and Construction Trades Council

2/9/90
Rep. Kay Brown

**BUILDER AND HOUSING PROFESSIONAL COMMENT
IN SUPPORT OF
HB 358 - MINIMUM THERMAL ENERGY STANDARDS**

AHFC has been committed to the development of energy standards for new construction. Staff members have been working with DCRA from the very outset. We served on the Advisory Committee which assisted in the development of the recommended standards.... We believe the standards are a necessity to help ensure a better housing stock for Alaskans as well as provide homeowners with the potential for lower fuel bills.

Tom Behan, Executive Director
Alaska Housing Finance Corporation

The Alaska State Legislature should enact legislation to restore clear legal authority for the implementation of appropriate minimum thermal standards, based on regional differences, for newly constructed state-financed housing.

Housing Policy Development Committee
Alaska Housing Market Council

At Anchorage Neighborhood Housing Services we have had many occasions to inspect housing units as part of our requirements for lending and in conjunction with our construction assistance programs. There exists a great need for improvement to minimum thermal standards in most of the existing housing stock in Anchorage.

Cynthia A. Parker, Executive Director
Anchorage Neighborhood Housing Services, Inc.

As a builder of energy efficient homes in the Fairbanks area for many years which without exception exceed the State Energy Standard, I feel that [HB 358] will tend to put conscientious Alaskan builders on an even playing field with the fly-by-night contractors from outside who don't know how to build in this environment and, in some cases, don't care.

Mike Musick
Ester Construction
Ester, Alaska

As a builder, I am intimately familiar with what it takes to build appropriately for the Alaska climate. I know we can do better for the people of Alaska than we have in the past.... My own building practices meet or exceed the State minimum energy standard. Other builders should be doing the same.

Ralph W. Brodin, Owner
EE/CC General Contractors
Girdwood, Alaska

During the past two years I have built several homes in the Homer area that meet or exceed HB 358's energy standards. I counsel every one that I build for that an energy efficient house is not only healthy and comfortable but also a good investment because of energy savings.

David Ellington
Ellington Construction
Homer, Alaska

As the American Institute of Architects/Alaska Chapter representative on the Advisory Committee for the [state standard] I was impressed by the participation of all Alaska building industry's sectors.... [The standards] are reasonable and reflect logical and climatic conditions for each region of the State.... Too often builders have sought short term practices through the use of inadequate building practices at the expense of long term operation and maintenance costs.

Robert Balivet, AIA
McGlothlin Balivet Co. - Architects & Planners
Anchorage, Alaska

I am an architectural designer and have been involved in the design and construction of several homes that exceed the minimum energy standards. I am very knowledgeable about the building science and practices that ensure a comfortable, healthy, and energy efficient home. I am also aware of the very slow pace in which the building trades adopt new methods and materials... In order to improve the comfort and quality levels of our housing stock, we simply need HB 358.

James A. Dory
Dory and Associates
Nome, Alaska

As a building official of a major Southeast Alaska community, I have been involved with the entire public development of the standards [The standards] are technically sound, reasonable in their scope and practical in their nature and application.

Harry Chartier, Building Official
City and Borough of Sitka

[T]he minimum insulation requirements between the proposed State of Alaska "Energy Standard" for gas heated dwellings in [the] Anchorage area and HUD's MPS [Minimum Property Standards] are nearly identical. The major differences between the two is the state proposes to quantify acceptable infiltration losses and ventilation requirements. We believe that this is a positive step in establishing building performance criteria.

Arlene Patton
U.S. Housing and Urban Development
Anchorage Office - Region X

[T]here must be some inducement to encourage builders to maintain certain standards since businesses tend to stay with the old easy less expensive methods. We are just finishing a new home built to meet or exceed ACHP [Alaska Craftsman Home Program] specs which are more stringent than the proposed State standards.

David T. Thompson
Fairbanks, Alaska

The lack of thermal standards in the past provides the Low-Income Weatherization Program here in the Fairbanks North Star Borough with a seemingly endless supply of rapidly deteriorating high-energy-use dwellings...in need of so much more than the [weatherization] program can provide that the measures often become a band-aid approach to a terminal wound.... There is no reasonable excuse to perpetuate the supply of inadequately constructed buildings.

Robert Maxwell
S.I.H., Inc. - Weatherization
Fairbanks, Alaska

The average homebuyer knows very little, if anything, about energy efficient home design.... Yet they will live in these homes and pay the bills for them ever after.... In our design practices we always strive to meet or exceed the State minimum energy standard. Other architects should be doing the same.

Ronald Bisset and Andrew Simasko
Architects Bisset/Simansko
Palmer, Alaska

I view this legislation [HB 358] as critical to the future of our states' building industry in that it will enable Alaska residents to finally receive thermal value in housing that is appropriate to the diverse climate zones of our great state. As a member of the National Association of Home Builders (NAHB) I am aware of attempts by many of our members to stall implementation of these standards and wish to clarify that there is not in any way a consensus to this effect.

Philip Loudon
Arctic Technical Services
Fairbanks, Alaska

As a four year member of the Alaska Home Builders Association, I would like you to know that I support the Thermal Standards as written and their original intent. One of the reasons I especially liked the original implementation of the Alaska State Thermal Standards is they were not mandatory [and only apply to housing using] Alaska public funds.

C.R. Deer
Alaska Window
Fairbanks, Alaska

Even though the standards will eventually help the construction trades, the industry is taking a short-term viewpoint by delaying implementation.... [further delay] is really unnecessary and only focuses on special interest groups who voice objections... Once again, Alaska is lagging behind the nation in implementing a rational energy policy.

Raj Bhargava, MSME
Raj Bhargava Associates - Engineering in Alaska

2/9/90
Rep. Kay Brown

QUESTIONS AND ANSWERS CS SS HB 358 (C&RA) - Minimum Thermal Energy Standards

Why is a minimum thermal energy standard needed in Alaska?

Energy consumes a substantial fraction of Alaska family income. A survey of eight rural villages found that 16 to 37% of family income is spent on energy, while a 1988 "Alaska Rural Housing Needs Assessment" found that 36% of rural homes could not maintain an indoor temperature of 70 degrees during the cold winter months. A recent audit of 714 HUD housing units concluded that "projects are being developed that are infeasible, improperly designed, and inadequately constructed." The audit found that in some homes interior walls were sheathed in ice during the winter.

Apart from lower monthly energy costs to individual consumers, the state also has a substantial equity interest in the quality of state-financed housing. Inadequate insulation or an improperly installed vapor barrier can result in severe structural damage. Substantial funds have been required to repair and upgrade state repossessed homes just to make them marketable for resale. The state's equity investment would be better protected with minimum standards to ensure quality construction.

Finally, most homebuyers don't have the kind of expertise and technical knowledge to properly evaluate the quality of a building when purchasing a new home. For many people a new home is the single most significant investment a person will make. A thermal energy standard will help ensure these homebuyers will receive at least a minimum quality of construction.

Do other states have minimum thermal energy standards?

Yes. In fact, nearly all states have some form of minimum thermal energy standard according to the most recent survey by National Conference of States on Building Codes and Standards (1989).

Would CS SS HB 358 (C&RA) require that all Alaska homes be built to the state minimum standard?

No. Only new homes developed with state financial assistance constructed after December 31, 1990 would be required to meet the state minimum standard. Homes built "out of pocket" or financed without state funding would not be subject to the standard.

Can Alaska builders meet the proposed state minimum thermal standard and still be competitive in the market?

Yes. A significant number of Alaska builders already meet the proposed state minimum standard. Moreover, there are 70 new homes statewide (a substantial fraction of total new houses) being developed to meet the much *higher* standards of the Alaska Craftsman Home Program (ACHP). Builders from various regions of the state have expressed support for HB 358 and the proposed state minimum standard. Adoption of a minimum state thermal standard would have the effect of putting builders on a more "even playing field."

To put the proposed state minimum standard into perspective, for Anchorage gas-heated homes, the minimum insulation requirements under the proposed state standard are nearly identical to HUD's Minimum Property Standards (MPS). Significantly higher insulation levels for Anchorage homes are recommended in the most recently published industry developed standard published by the American Society of Heating, Refrigeration and Air-Conditioning Engineers (ASHRAE, March 1989 - 90.2P).

Would meeting the minimum standard increase the cost of new homes?

The standard would have essentially no effect on builders who already meet or exceed the proposed state minimum. Other builders not presently meeting the standard would experience a small increase in construction costs. For those builders not meeting the standard, the incremental costs to meet the standard have been carefully evaluated. Independent private sector cost estimating firms were used during the formulation of the standard. Compared to "typical" construction practices during the "boom" real estate years of the early 1980s, the standard could result in a 2 - 5 % cost increase. For a representative 1,320 square foot Anchorage gas-heated house built to the early 1980s standard, incremental costs to meet the standard would be approximately \$1,000 to \$1,350.

Is energy efficiency recognized in the Alaska housing market?

Yes. The best demonstration of demand for energy efficient housing is provided by the fact that approximately 70 new Alaska Craftsman homes, are currently under development. These homes are extremely energy efficient, far exceeding the proposed state minimum standard, providing solid evidence of market demand for energy efficient housing stock.

Evidence of consumers recognizing a "resale premium" for energy efficient homes comes from a recent survey of AHFC home sales prepared by the Institute for Social and Economic Research (ISER 1988). Controlling for home age, size, features and location, this study evaluated the sale price differences between homes heated with

electricity vs. natural gas. The study found that the lower cost gas homes sold for about 15% more than comparable electric homes, indicating that the Alaska marketplace is well aware of energy efficiency and utility costs as a factor in homebuying.

Finally, there is also indirect evidence of a "resale premium" for energy efficient homes from a 1988 Canadian market survey of several matched pairs of Canadian energy efficient R2000 homes. This study found that the R2000 homes commanded a resale premium of about \$5,000 (4.6%) on an average price of \$108,000 (LeBlanc & Associates).

Are there financial incentives to encourage the construction of energy efficient homes?

Yes. In fact, the major Alaska lending institutions have developed a financing program that specifically rewards the purchasers of energy efficient homes. In recognition of the lower monthly utility costs associated with energy efficient homes, the Alaska Housing Finance Corporation (AHFC), the Federal National Mortgage Association (Fannie Mae), the Federal Home Loan Mortgage Corporation (Freddie Mac), VA, FHA and the DCRA Housing Assistance Loan Program will all qualify a homebuyer for higher mortgages than would otherwise be possible. Through the Energy Rated Homes of Alaska (ERHA) program these lenders will allow a homebuyer to qualify for a higher loan by increasing the allowable debt-to-income ratio in recognition of lower monthly utility costs. Under the ERHA program the buyer of an energy efficient house will qualify for an additional 1-2% on his/her debt-to-income ratio (i.e., increased from 28% to 29-30%). With a \$4,000 monthly income, this means a home buyer would qualify to borrow an additional \$4,800 - \$9,400 above the amount allowed for less efficient homes. The proposed state minimum thermal standard will qualify homebuyers for the larger mortgage. Thus, by buying an energy efficient home, the homeowner can "afford more home" with the same income and also lower monthly utility costs. In addition, the Department of Community and Regional Affairs has provided incentive demonstration grants to builders to encourage the construction of energy efficient homes. Most recently, DCRA has developed a special loan "buy down" program to encourage the construction of homes to meet the state standard.

Is the proposed state thermal energy standard cost-effective?

Yes. As noted previously, for those builders who already meet the standard, there would be no added costs. However, in order to evaluate the cost-effectiveness of the standard relative to a hypothetical home built to construction practices representative of the "boom" real estate years of the early 1980s, a recently updated economic analysis found that, even in Anchorage with relatively low-cost natural gas, a home built to the proposed minimum standard would realize energy cost savings substantially in excess of incremental costs. Based on a hypothetical 1,320

square foot home, this analysis projected homeowner cash flows (incremental costs vs. added energy savings) to determine the economic merit of the added conservation measures. Because interest paid on a home mortgage is tax deductible while utility payments are not, the after tax present value (i.e., cost) to the homeowner would be only \$1,033 while the overall net positive value (i.e., net energy savings above costs) would be \$611, an extraordinary investment value by any measure.

Are indoor air quality concerns addressed by the proposed state standard?

Yes. Indoor air quality concerns were specifically addressed during development of the proposed state standard. A special technical advisory committee was established which included representatives from the American Lung Association, local government building officials, private sector building professionals and representatives of the homebuilding industry. As a result of the advisory committee work, a consensus proposal was recommended by the committee and incorporated into the standard calling for a minimum ventilation standard of 0.5 air-changes-per-hour (ACH) to assure indoor air quality. By way of comparison, the proposed state ventilation standard of 0.5 ACH calls for somewhat *more ventilation* than the industry recommended standard of 0.35 ACH developed by the American Society of Heating Refrigeration and Air-Conditioning Engineers (ASHRAE). Moreover, because there are presently no specific ventilation requirements for new homes under present state law, adoption of the proposed state standard, which specifically addresses ventilation concerns, will help ensure that future homes have adequate supplies of fresh air. Both the American Lung Association of Alaska and the Alaska Health Project, organizations specializing in occupational and environmental air quality concerns, have expressed support for the proposed state standard.

How would the standard be implemented?

CS SS HB 358 (C&RA) identifies several specific alternative options for builders to show compliance with the standard:

- Contractor self-certification, including proof that the contractor has completed the Alaska Craftsman Home Program training program or its equivalent;
- Providing a rating from the Energy Rated Homes of Alaska program demonstrating that the home meets the standard on a functional basis;
- In a community where the local government has a building inspection process which embodies the standard within their code, a copy of the Certificate of Occupancy stating compliance with the code; or
- An engineer's, architect's or building inspector's certification that the standard has been met, provided the person making this certification has completed the Alaska Craftsman training program or its equivalent.

Has the housing industry been involved in the development of the proposed state minimum thermal energy standard?

Yes, extensively. Representatives of the housing industry have been directly involved in the development of the proposed standard since the beginning. An Advisory Committee was established to guide development of the standard that included representatives of the Alaska State Homebuilders Association (ASHBA), the Alaska Mortgage Bankers Association, the American Society of Heating, Refrigeration and Air-Conditioning Engineers (ASHRAE) and the Alaska Association of General Contractors (AGC). The Advisory Committee reviewed every phase of the research and analysis during development of the standard in order to develop the final consensus recommendation. During the development of the standard the advisory committee a clear choice was made to recommend a truly minimum energy standard that a number of builders were already building to in a given region in order to assure that the standard would not cause a disruption in the marketplace.

Throughout the development of the standard the Building Industry Association of Anchorage (BIAA), the Anchorage chapter of the ASHBA, was invited to provide comment on technical issues. A large number of specific changes were made to the standard during its development as a result of this industry comment. In October of 1986, BIAA representatives met with then-DCRA Commissioner Emil Notti and indicated that, although certain members of the organization would likely dissent, the BIAA could accept the proposed standard. As predicted at the time, a certain faction of builders remains opposed to the idea of a minimum standard.

How does the proposed state minimum thermal standard compare to the Alaska Craftsman Home Program (ACHP)?

In contrast to the state standard, which was developed as a minimum standard, the Alaska Craftsman Program has developed energy standards which are much higher, optimum Alaska standards. Fundamentally, the ACHP provides education and technical assistance in the area of energy efficient design and building.

Is the proposed state thermal standard flexible?

The proposed minimum thermal standard is "regionalized" to recognize the different climatic conditions around the state. The standard also assures flexibility for the builder by allowing a choice among any of three different ways to meet the minimum standard:

Prescriptive Method - the easiest method of all, this method identifies certain mandatory design measures and minimum insulation levels.

Performance Method - this method allows the designer to "trade off" certain requirements against one another (e.g., window area vs. insulation in the walls).

Building Budget Method - total design flexibility is provided to a builder using this method within a total "heat loss budget" (BTUs lost per square foot).

State statute also provides for waivers in the event that a specific measure can be shown to be not cost-effective (AS 46.11.040).

Is there public support for an Alaska minimum thermal energy standard?

A broad cross-section of builders, housing industry professionals, utilities, consumer groups, unions, non-profits, local governments and individuals have all expressed support for Alaska minimum thermal energy standards.

Why was the state minimum energy standard enjoined by the Court?

Just prior to the time the proposed state standard became effective, a lawsuit was filed that took advantage of a drafting technicality in the original 1980 law. That original 1980 law mandates that "state financial assistance may not be approved for the construction of a new residential or commercial building" unless the building is in compliance with applicable state energy standards (AS 46.11.040).

The plaintiffs argued for a narrow, literal reading of the law -- that the statute should limit the prohibition of state financial assistance to direct construction lending only. Even though the original 1980 legislation had a "Declaration of Policy" section clearly stating the Legislature's intent to establish "mandatory energy efficiency standards for buildings purchased or constructed with state financial assistance" (emphasis added), the language actually codified into law only references financing "for the construction of" new structures. Further, limiting the applicability of the standard to construction lending, however, renders the standard almost meaningless since virtually no state financing involves direct construction lending. Nevertheless, the lawsuit successfully exploited this drafting oversight in the Superior Court.

HB 358 was introduced to reaffirm the Legislature's clear intent in 1980 to have a minimum thermal standard apply to all new homes purchased or constructed with state financial assistance.

Opinion

Energy costs drain the rural economy

By DAVID G. HOFFMAN

In most rural Alaskan communities energy costs are placing a serious strain on the local economy. This burden is illustrated by research showing that rural Alaskans spend between 16 percent and 37 percent of their family incomes on energy bills. In Anchorage energy costs take only two or three percent of a person's paycheck.

Local governments are feeling the pinch too, as the result of the downturn in the state economy combined with cuts in federal funding. Many rural communities have facilities that they can no longer afford to heat or maintain.

Alaska is one of only three states in the union without an energy standard for home construction, and all too often homes built here simply don't measure up to the climate and state energy costs. A Department of Community and Regional Affairs Rural Housing needs assessment found that 28 percent of homes in rural Alaska could not maintain a healthy indoor air temperature of 70 degrees Fahrenheit during the long winter months, regardless of how well the furnace or woodstove is burning.

The wretched condition of rural housing was underscored in the Federal Housing and Urban Development's recent audit of its rural housing program. HUD auditors determined that rural housing projects "are being developed which are in-

feasible, improperly designed and inadequately constructed."

This can be seen in the Northwest Alaska community of Golovin, where a low income family living in a 700 square foot home uses a barrel of heating oil a week and still cannot achieve a comfortable temperature.

Answers are not hard to find

An obvious solution would be to construct home that can withstand the rigors of an Alaskan winter and have affordable heating bills. It's now possible to construct homes that are comfortable and healthy, and can be heated for less than \$300 a year. The department of Community and Regional Affairs recently announced the award of a grant to build 13 such "superinsulated" homes in Golovin next summer.

The Alaska Craftsman Home Program, also sponsored by the Department of community and Regional Affairs, encourages the construction of such homes by offering training and technical assistance to contractors, lending institutions and home builders. Over 50 homes across the state are now being constructed to the program's voluntary standard. But voluntary standards are not enough.

Energy standard needed

In addition, the state needs to implement an energy standard for homes that

have been purchased with state financial assistance. The department has developed a standard geared to the different regions of the state to reflect Alaska's diverse climate, energy expenses, and construction costs. Implementation of the standard is being delayed, however, by a legal challenge from a small group of urban contractors.

Rep. Kny Brown, D-Anchorage, has introduced legislation (House Bill 358) which addresses the legal issues raised by the suit, to clear the way to implement the standard. Alaskans deserve homes that are comfortable, healthy and affordable to heat.

Another solution would be to retrofit community facilities so they could have healthy temperatures and be less expensive to maintain. For example, it is possible to reduce a building's heating costs an average of 60 percent through remodeling it to so-called "superinsulation" values. New energy-efficient light bulbs can provide the same amount of light while using 35 percent less electricity and last four times longer than standard light bulbs.

These are not pie-in-the-sky dreams. Down to earth examples can be found in Tununak where the village clinic was superinsulated, reducing the annual \$4,000 heating bill to \$1,100. A Mat-Su Valley home will be heated by its water heater after it is retrofitted through the

Alaska Craftsman Home Program. A lighting retrofit in Nikolai cost \$2,246 and is expected to net a \$1,151 savings in the first year.

Everybody benefits

The Low Income Weatherization Program assists those Alaskans who are least able to afford high energy bills. The heating expenses for needy Alaskans participating in the program have been cut by an average of 25 percent after receiving home improvements such as additional insulation, repairs to cracked walls and installation of efficient heating systems. This program makes particular sense for rural Alaska with its high energy costs, severe weather and high incidence of substandard housing.

Energy programs strengthen local communities by reducing the operating costs of homes and community facilities, ensuring long-term financial savings. And because the labor skills needed to make the improvements are easily attainable in each community, sorely needed jobs are created. It's a combination that makes sense for rural Alaska.

(David G. Hoffman is the Commissioner of the Department of Community and Regional Affairs, which is responsible for energy conservation and weatherization programs in the state.)

Report says federal housing for Alaska Natives is a mess

By **GEORGE FROST**
Daily News reporter

A federal housing program for Alaska Natives is riddled with waste, and many of the homes built since 1975 are unsafe, substandard and ill-suited to harsh arctic conditions, according to a study released Tuesday by a federal housing inspector.

The program, administered by the Department of Housing and Urban Development, is so poorly run that it must be considered a failure, said Rich Nygaard, regional inspector general for the Department of Housing and Urban Development.

"Despite more than 14 years experience, HUD has

not provided Alaska Natives with decent, safe or affordable housing. Design and construction defects, deferred maintenance and poor housekeeping continues to create safety and health hazards for Alaska families," he said.

Local HUD officials disagreed strenuously with many of the audit findings.

"We feel the audit report is completely flawed and does not cover what they said they were covering," said Arlene Patten, acting HUD manager of the Anchorage office. "It is based on a false premise and a misunderstanding of the program."

Patten said the audit fo-

cused on projects built in the late 1970s and early 1980s startup phase of the program and "does not show the substantial improvements."

"Since then, most of these things have been corrected and the homes are no longer substandard," she said.

"I think the program is trying to meet the need of the regional Bush people of Alaska, and without that program there would be no housing out there for them."

More than \$300 million has been spent to build 3,290 single-family homes under the Alaska Mutual Help Home Ownership Program.

Please see Back Page, HOMES

Continued from Page A-1

The Alaska program, part of a nationwide Indian housing system, gives low-income Native families an opportunity to purchase their own homes. They pay whatever they can afford, and HUD makes the remainder of the loan payments.

Of all the homes built since 1975, more than six of every 10 have been either the subject of a lawsuit because of poor construction or have required extra HUD funding to correct those problems, according to the detailed, 141-page report.

An inspection of 207 of the 714 newer homes built since 1984 showed that almost all had serious problems. All 207 had defective foundations. Many of the homes rest on primitive pads that are unsuited for the fragile tundra, subject to summertime floods and fierce winter storms.

Fifty-seven had broken or deficient furnaces, stoves and other mechanical systems.

"In some projects, home and basic sanitary maintenance was quite limited and others nonexistent," the study said.

A series of inspections in villages throughout the Bush turned up numerous safety hazards: broken stairs and porches, tottering foundations, and electrical hazards from improperly installed lighting fixtures, the audit said.

Some families use Coleman camping stoves to cook their meals because their regular stoves are broken or they can't afford propane cylinders that fuel them. Others burn creosote-soaked driftwood for heating, another potential hazard.

Nine of 50 homeowners in one village reported that cracks in the flooring of their homes allowed winds to "enter with such force that it raises the vinyl floor-

ing off the floor, creating an effect like walking on pillows."

And in wintertime, interior walls are sheathed in up to 4 inches of ice, the audit found.

HUD contracts with 13 different Indian Housing Authorities, most of them subdivisions of local government or Native corporations and agencies, to run the program.

William Nishamura, regional HUD administrator for Alaska, disagreed that a majority of homes are substandard. The audit ignored the complexities of building in the Arctic, he said. Building standards and materials are not yet perfected for Alaska.

Nishamura laid blame for many of the problems at the door of the Native housing agencies. Building sites are chosen by the Native agencies, which also provide the soils engineers, architects, planners and builders, he said.

A majority of problems cited in the report are caused by poor maintenance, not poor design or construction. And it is the responsibility of Native housing agencies to train homebuyers how to maintain their furnaces, stoves and foundations, not HUD's, he said.

John Guinn, executive director of a Bethel-based housing agency run by the Association of Village Council Presidents, agreed with many criticisms in the audit but said the program was not a failure.

"I disagree that it's not working. It's been very effective in providing housing for the needy. The program just needs somebody at HUD who is willing to stand up for what we need."

Guinn said the housing program operated at a furious pace in the early 1980s, and mistakes were made.

"A lot of it was finding a contractor who knew how to

build in rural Alaska," he said. "And a lot of (housing) directors didn't have construction experience. We were playing catchup. I think our housing authorities built over 400 in one year."

"We were building so fast there would have been problems in construction and in HUD oversight."

In the early years of the program, homes were built to Lower 48 standards, he said. "There were not adequate furnaces, not adequately insulated. They (HUD) don't realize that when it's 30 below and blowing 100 outside you have got quite a wind-chill factor."

The Native housing agencies are repairing many of the problems and training families in basic maintenance, he said.

"They are all being repaired. We will authorize \$25,000 or more per house for new furnaces, doors, insulation."

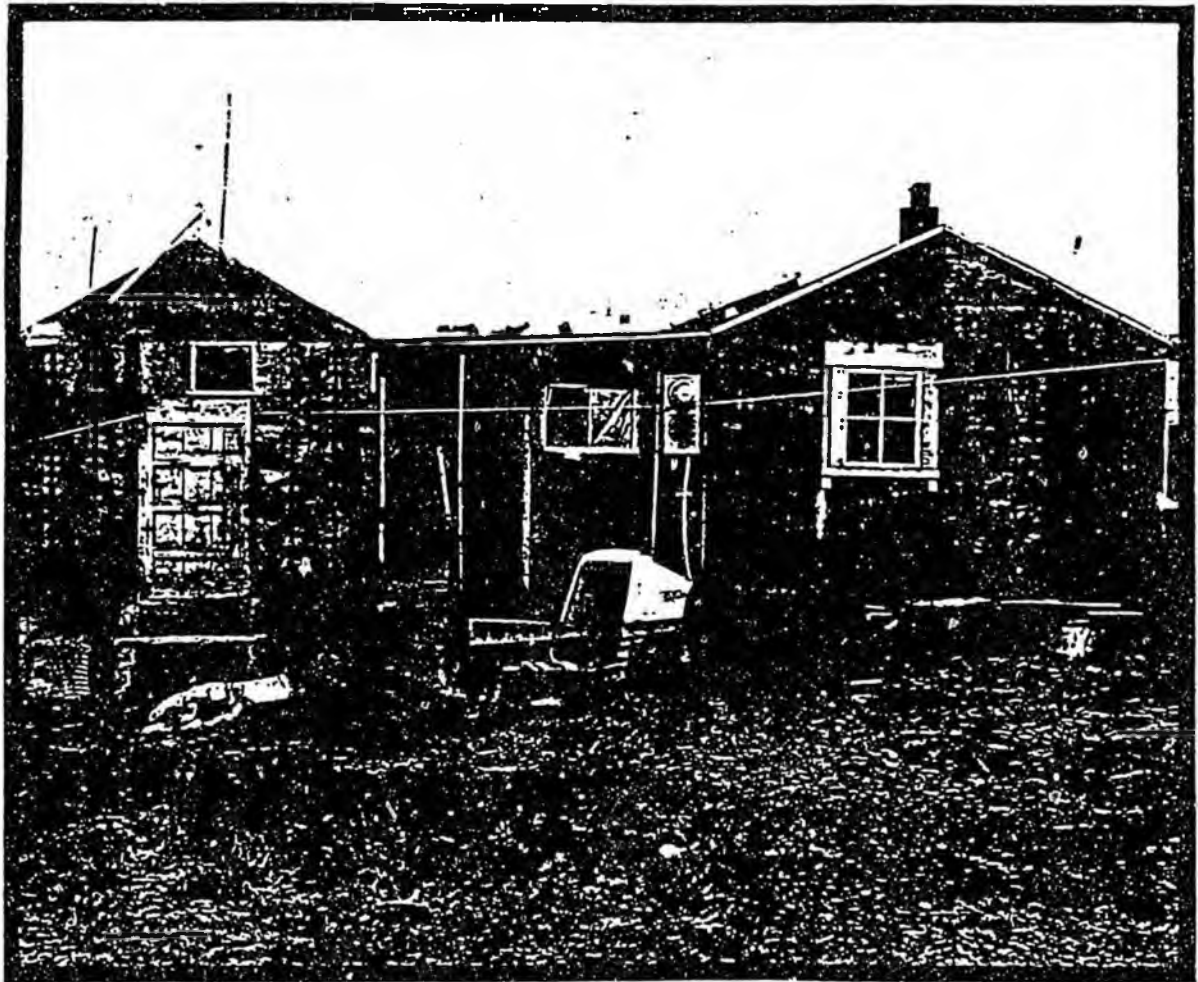
A problem that all concerned agreed on was a shortage of money for the program, and an unrealistic "cap" of \$92,200 that can be spent for any one home.

That money must stretch to pay for "planning, architecture, a soils engineer, shipping, construction, everything," Guinn said. "In many cases in remote villages it is not enough to do the job, so at some point you have to cut corners."

"When you get out to some of these remote tundra villages, gravel is like gold," he said. "You can't afford to fly it in. A couple years down the road the house starts moving."

Guinn said that HUD signs off on every home that is built, and "someplace along the line I think somebody in the HUD system should have had the intestinal fortitude to say this foundation won't work or this heating system isn't adequate."

1988 Rural Housing Needs Assessment Study



DOYON Region - Photo by Rob Stapleton, Jr.

State of Alaska
Steve Cowper, Governor



Department of Community
and Regional Affairs
David G. Hoffman, Commissioner

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March 1988

HOUSING PHYSICAL CONDITION BASED ON INSULATION

In the following table, percentages of houses with attics and walls of different R-values are listed by region. R-values refer to the level of insulation. One inch of batt insulation is approximately equal to R-3. For example, R-38 is equivalent to 12 inches of batt, and R-19 is equivalent to 6 inches of batting.

Insulation Levels in Percentages:

	-----Attic-----					---Walls---		Can't Maint 70 deg F
	R<R11	R<R19	R<R22	R<R30	R<R38	R<R11	R<R19	
Ahtna	15%	51%	78%	80%	96%	22%	69%	56%
Aleut	23%	36%	50%	65%	76%	23%	45%	16%
Arctic Slope	0%	6%	19%	36%	56%	1%	18%	37%
Bering Sts	14%	29%	89%	94%	97%	11%	41%	67%
Bristol Bay	14%	39%	76%	78%	90%	19%	52%	22%
Calista	3%	34%	68%	77%	77%	11%	78%	41%
Chugach	16%	26%	47%	56%	71%	20%	52%	15%
Cook Inlet	7%	22%	52%	71%	77%	10%	62%	12%
Doyon	4%	18%	47%	74%	79%	11%	65%	40%
Koniag	2%	11%	17%	18%	20%	3%	63%	27%
NANA	25%	25%	50%	50%	50%	1%	26%	72%
Sealaska	12%	55%	93%	95%	97%	15%	81%	41%
TOTAL	9%	29%	58%	69%	76%	12%	57%	36%

According to the 1986 Energy Conservation Standard For New Residential Buildings published by the State DCRA Office of Energy Programs, the minimum prescribed insulation requirement for ceilings is R-38, except in Arctic Slope where the ceiling requirement is R-52. The minimum prescribed insulation requirements for walls are R-21 in Sealaska; R-18 in Aleut, Chugach, Cook Inlet, and Koniag; R-25 in Ahtna, Bristol Bay, Calista, and Doyon; R-30 in Bering Straits and NANA; and R-35 in Arctic Slope.

Houses with attic R-values less than R-38 range from 71% to 97% in nine of the regions, and more than half of the houses in two more regions. Houses with wall R-values less than R-19 range from 41% to 81% in all but two region.

Living in the mistakes of the past

Houses are slums after only 10 years

By HAL BERRITON
Daily News reporter

ST. MICHAEL. — When the west wind brings a blast of chill Siberian air to the island village of St. Michael, Lee Kobak buddies up and tries to keep his family warm. He locks a blanket across the back door, puts an electric heater in his bedroom and turns his fuel-oil stove up full blast.

In the worst of the winter cold snaps, when the outside temperature may dip below minus 30, Kobak still can't muster enough heat to keep his house comfortable. Frost forms along the living room wall, ice coats electrical sockets and water may freeze when spilled on the kitchen floor.

In warmer weather, Kobak has other problems to contend with.

Snow that drifts into the roof eaves and trickles down through walls and the kitchen ceiling. As summer approaches, the permafrost beneath his house begins to thaw, the wood foundation heaves and his floor begins to curve in strange ways. Kobak used to level the house by jacking it up and adjusting the wooden support blocking. But the jacks cover did the job. They raised the middle of the house, but left the sides sagging.

Kobak's three-bedroom box house is one of 500 housing units financed 10 years ago by the federal government in 19 Bush villages. Designed by architects of the federal Bureau of Indian Affairs, each house was identical in the past — rectangular red, yellow and green-painted boxes of siding, plywood sheathing and metal roofs.

A decade after their completion, many of the houses are falling apart. Floors are rotting, joints separating and some houses are in danger of sliding off their foundations. Kobak can shove a knife blade through the cracks along the base of his living room wall.

"When they were building



Andrew and Esther Oden stand in front of their old house, left, and their new home.

Designers slowly learn how to build housing in the Bush

By HAL BERRITON
Daily News reporter

ST. MICHAEL. — From the outside, the house looks quite ordinary — boxcar shape, flat-like foundation and metal roof. Only a fresh coat of yellow paint distinguishes it from much of the other Native housing built in this remote Alaska village.

But step inside on a cold, mid-winter day. With the aid of a small fuel-oil furnace, the house stays warm. No ice on bedroom walls. No frost inside the windows. No huge heating bills. To St. Michael villagers, this house — just completed in December — seems like a major step up.

"Everybody in town, they look at this and say, 'where were those houses 15 years ago,'" said Albert Washington, St. Michael's mayor.

The St. Michael home is an example of a new wave of federal housing in the Bush — better designed and better fabricated than predecessors built in the 1970s. Although not without problems, the



St. Michael village

new dwellings are helping improve the tarnished reputation of federal Native housing projects in rural Alaska. These projects offer villagers the chance eventually to take title to the houses through monthly payments. The size of the payments is pegged to their income.

A decade ago, many of the Native houses built in Alaska proved better-suited for mild or lower 48 climates. Nearly a thousand dwellings — low-budget affairs put together with the aid of villagers who often lacked construction skills — went up throughout western and interior Alaska. Housing materials were of poor quality. Foundations ill-

designed. Hundreds of the homes now seemed destined for early obsolescence.

Today, the permafrost and intense cold of the far north still pose formidable construction challenges. But in a long and sometimes painful learning process, designers are figuring out ways to build better Bush housing.

The St. Michael home, a prototype developed by Phil Kaluzn, a Nome builder, features a double outer wall roofed flat with insulation. Triple-pane windows — made by a Fairbanks manufacturer — help keep warm air trapped inside. When the air gets stale, a heat exchanger sends the air outside and draws in fresh air. The furnace, controlled by a computer sensor, is nearly twice as energy-efficient as old-style systems installed in many of the neighboring houses.

Design Lab Inc., an Anchorage-based architectural firm, also has worked to improve the quality of Bush projects. During the past decade, it has designed about 1,500 houses for regional

housing authorities funded by the federal Department of Housing and Urban Development. In the interior, it has created Indian houses of log. In the Yukon-Kuskokwim Delta, houses feature 10-inch-thick walls and heavily insulated floors and ceilings. In Southwest, the firm has experimented with a double-walled structure.

Foundation systems also have changed. A decade ago, house sites often were flat spots bulldozed out of the tundra. With the protective insulation of the vegetative layer stripped away, these sites tended to bog in warm weather. Houses built on these pads at the wooden support system sank into the soft ground.

Since then, two different techniques have been taken to deal with the permafrost. Some designs call for metal pilings to be driven through the permafrost layer and into solid ground. Others designs leave the tundra intact, then insulate with special synthetic pads and gravel whenever

possible. The wood foundations are built on top of this cover. Each year, as the ground settles, they are leveled with jacks.

Federal officials who fund the housing projects view the new designs with cautious optimism. Many of the cold problems that plagued the '70s-vintage houses have been vanquished. But in the process of curing old problems, new ones have arisen.

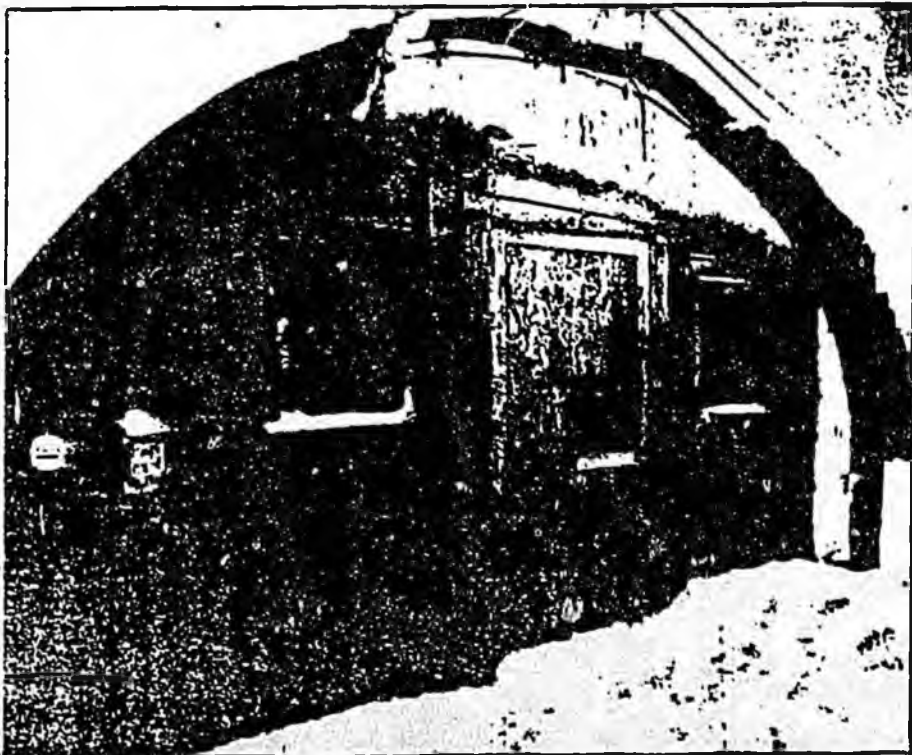
About 800 of the more than 3,000 late-model project houses have major design problems the federal government is spending \$2.4 million to repair, said Miller Lutton, director of HUD's Alaska housing program. These houses are expected to last more than 20 years.

"If you counted the number of innovative houses that have been tried in Alaska, you could count over 100," Lutton said. "Many appear to be successful. But you got to put them out there for a while."

Almost all of the new housing

See Page E-3, LESSONS

LESSONS: Designers slowly figure out how to build houses in the Bush



An abandoned building in the Lauvestown area of Bethel

Continued from Page E-1

as are perched up off the ground on wooden stilts. To keep cold air from blowing up underneath the house, some weatherization teams and home buyers have put particle board skirting around the stilts. The skirting not only keeps out the cold air, it holds in the warm in some soils, that may cause the permafrost to melt. Once that happens, some foundations have begun to sag and self-destruct, Amaya said.

Even when design problems are overcome, houses still may not meet early expectations. Most of the houses now are built by contractors, and housing authorities are finding they need tough quality control to make sure the job gets done correctly.

In a recently completed housing project in Scammon Bay, for example, Felix Grant, a villager who worked on the project, says construction crews rushed through the job. They didn't ball down all the walls and left some wood supports out from under some floors.

When Grant moved into his new house, he found the vinyl floor unraveling and soaked with fuel oil. "There are lots of problems," Grant said. "The whole plywood floor should come out where it's soaked with fuel oil."

John Gwinn, director of the Association of Village Council Presidents, the Bethel-based housing authority that developed the Scammon Bay project,

6 If you counted the number of innovative houses that have been tried in Alaska, you could count over 100. 9

— Miller Lutton

problems with new houses. The contractor has been asked to go back and fix them, he says.

Gwinn also has been working to get village home buyers to take care of more of their routine maintenance in the city, when a toilet plugs up, a window breaks or the house needs a fresh coat of paint, the home buyer is to be responsible for repairs.

But home buyers often lack the inclination or the skills to do such work. And their villages often have no hardware stores to supply parts. Many look at the housing authorities as landlords, whose staff should fix whatever goes wrong.

Since the late '70s Gwinn says his Bethel housing authority has built more than 800 houses in Kuskoquim-Yukon Delta villages. But the program still has fallen far short of meeting all the needs in his region for low-to-cost housing. "There are 24 villages in the area, and there are a lot left that haven't had any housing."

More than 10,000 houses are needed in the Bush, Amaya

ALASKA 500: 10-year-old federally financed houses now falling apart

Continued from Page E-1

these houses, they were thinking of the Lower 48," says Kobuk's wife, Katherine. "They are not built for Alaska."

Andrew and Esther Otten, the Kobuk's neighbors, have caulked up most of the cracks in their inside walls. But on a blustery day, the wind still freezes the moisture to the living room paneling.

The Ottens hang up a tapestry in the house proclaiming "Home Sweet Home." But Andrew Otten said he sometimes has second thoughts about the federally financed housing.

My old house used to be warmer. It had two rooms and it didn't use that much oil.

The Alaska "500 homes" now hold an infamous niche in the history of a gargantuan federal effort to bring modern housing to Alaska's villages. The federal Department of Housing and Urban Development — working largely through regional housing authorities — has spent more than \$500 million to build more than 4,500 houses in rural Alaska.

The program has sought to improve the living conditions of Alaska Natives by moving them out of overcrowded shacks and cabins and into more spacious, better-built housing. Wherever possible, the houses were covered up in new sewer and water systems developed by the Public Health Service. Villagers then became home buyers, obligated to make modest monthly payments (not eventually allow them to take title to their houses).

Today, the program is nearly 10 years old and has replaced much of the ramshackle old housing in the Bush. By many yardsticks, it can be measured as a success.

In recent years, architects have adapted innovative insulation systems, foundation designs and construction techniques to create a new generation of public housing. Some of these homes suffer from design defects, but most are better able to withstand the rigors of Alaska's permafrost and sub-zero cold than the early housing of the 1970s.

As overcrowding has decreased, the incidence of tu-

berculosis, once a major killer, has declined. And life expectancies have increased. Better housing has helped slow the rural migration to cities. In many villages, populations have stabilized or begun to increase, said Miller Luton, director of the federal housing program in Anchorage.

But the program has a mixed legacy. In learning how to build good housing, the government has financed a lot of bad. And many people are still living in the mistakes of the past, saddled with sagging foundations and fuel bills they can ill afford to pay.

Kobuk says he uses more than \$250 a month worth of fuel — three-and-a-half 55-gallon drums of oil — during the worst of the winter cold. Federal assistance pays only part of the bill.

Rafael Afien, an aging carpenter living in another federally financed house in St. Marys, a Yukon River village, says his fuel bill leaves him with little money for groceries. "Sometimes, it's a question of paying for heat or paying for food."

All told, the problem houses include about a 1,000 houses built between the late '60s and the late '70s representing about a fifth of the total federal project units. These houses are riddled with design and construction flaws. Some have been abandoned or rarely to make way for replacements; the rest still are inhabited.

Some of the worst housing is in St. Michael and seven other western Alaska villages. Here, more than 40 percent of the housing is of the Alaska 500 vintage. Many of the houses "are in danger of collapse or self-destruction," wrote Dan Harrison, executive director of the Bering Straits Housing Authority, in a 1984 report to federal officials.

Harrison listed faulty wiring, foundations sliding off their earthen pads, deficient insulation, mildew and rot among the houses' many problems.

Villagers, disappointed with the quality of the homes, joined with other Alaska 500 homeowners in a class action suit against HUD for failure to deliver on its promise of a



Andrew and Esther Otten in their home in St. Michael

"decent home in a suitable living environment."

In a recent out-of-court settlement, the agency offered to try to repair most of the design and construction defects of the Alaska 500 homes. As an alternative, a villager could simply take title to his home, as is.

Most villagers chose to take the house and forget about the costly fix-up job. "I decided it would take years to get any of the repairs done," Kobuk said.

The federal housing program in the Bush was launched in the mid-'60s as national efforts to attack poverty in America reached a fever pitch. East Coast journalists trekked to Appalachia, the Midwest's ghettos and the Southern farm belt to profile the plight of the poor. Then, in the summer of 1968, Homer Bigart, a New York Times reporter, reached Alaska and proclaimed the Kuskoquim-Yukon Delta the poorest place in the nation.

"The worst slums in the United States are not in racially turbulent quarters of New York, Cleveland, Chicago or Los Angeles," Bigart wrote. "By all available indices of poverty, they are sparsely strewn, like garbage

on an ice floe, along the nation's desolate sea frontier with the Soviet Union."

The Eskimos that Bigart encountered had largely abandoned traditional homes of sod, driftwood and whale bone in favor of small log cabins and shacks of plywood, tarpaper and tin. Subsistence foods, not measured in standard poverty indices, helped make up for a lack of cash to buy groceries. But diet alone could do little to combat the diseases that ran rampant in the cramped, overcrowded housing.

In Kuskoquim Delta villages, 12 out of every 100 babies died before age 1. Tuberculosis, introduced decades earlier by whites, was a major killer of Eskimo and Indian adults. The Natives had a life expectancy one-half that of the average American.

Two years after Bigart's report, a Senate subcommittee led by Sen. Ted Kennedy, D-Mass., arrived in Bethel to tour a dilapidated section of Riverside property known as Lousetown. The area was such a mess that several senators didn't even want to get off the bus, recalls Gene Pamplona, a Bethel resident who accompanied the senators. Kennedy, followed closely by Sen. Walter Mondale, D-Minn., disembarked, gingerly walked up to a garbage dump and discovered a dead dog, frozen to the ground.

Finishing his tour, Kennedy vowed to build new housing in Bethel. Within months of his return to Washington, the money was in the pipeline.

"The first federal funds flowed to the Alaska State Housing Authority, which quickly launched a series of village housing programs. In many cases, these houses "began to deteriorate within months of the last nails being driven," wrote one ASHA of-

Bethel in a memorandum forwarded to Alaska Sen. Ted Stevens. "The common complaint ... consist of ceiling tiles coming apart; frost accumulating six feet high on the walls; cabinets coming off the walls; sagging, buckling ..."

Instead of winning Bush support for its housing programs, ASHA was hit with class action lawsuits filed by Alaska Legal Services lawyers. ASHA ended up giving away 200 of the houses to homeowners. Another 100 homeowners, in a settlement funded by the federal government, obtained new houses.

These fiascos convinced ASHA that it wanted no part of any new Bush housing projects. "It has been said that even if ASHA could walk on water, it would nonetheless drown in the Bush areas..." The ASHA official wrote. "... The animosity of the purchasers towards ASHA ... as a result of these programs is immense. These people feel that they have been lied to and that representations have been made that were not kept."

Despite ASHA's withdrawal from the Bush, the federal pipeline of housing dollars kept flowing. In 1973, it reached north to St. Michael. Back then, many St. Michael villagers lived in cabins and shacks left over from the boom days of the Gold Rush. During the early 1900s, St. Michael was a town of more than 10,000 people, the major port of entry for goods bound to the gold fields of the upper Yukon.

After the Gold Rush, most of the whites left. By the time the federal housing project began, St. Michael's population had dwindled to less than 400, mostly Eskimos. For lodging, some lived in the old log dwellings left behind by the Army; others had pieced together plywood and tarpaper shacks.

The St. Michael project was an attempt of self-help housing; home buyers themselves would build the houses and would be paid for at least part of their labor. To ensure quality housing, the Bureau of Indian Affairs was appointed to develop designs and supervise construction. Regional housing authorities were created to administer the program.

The program, which encompassed 508 houses in 19 villages, may have looked good on paper, but it unfolded in a chaotic series of events. Most of the houses, pre-cut two piece-together packages by an Oregon manufacturer, were barged north in the summer of 1973. One of the barges sank in the Dering Sea. The rest of the houses arrived safely in the villages.

In the frenzied months of construction, there proved to be scant time for quality control. The villagers proved largely unskilled in home building. And in some regions, feuds between the BIA and regional housing authorities prevented inspectors from ever setting foot in the villages.

At many sites, the fragile layer of tundra that helps keep the permafrost cool was stripped away to prepare for the wood foundation pad. That meant the permafrost would melt, turning into a soggy bog when the temperature warmed. Insulation and plywood were soaked by the rain, then slapped into the homes. The wet insulation lacked heat-retention value, and the plywood gradually rotted.

Poor-quality materials and design problems compounded the errors of faulty construction. The windows, for example, even if installed properly, let in lots of cold air. The fiber board cabinets were made cheaply. Even when nailed firmly to the walls, they tended to self-destruct. Tops fell off drawers and doors off shelves.

Still, when the homes finally were finished, people were eager to move in, recalled Albert Washington, mayor of St. Michael. "First cold weather we got, everyone was excited. They thought they were going to be warm. Then they found out how cold the homes were. The kitchen stoves couldn't even begin to heat the homes."

One hundred miles to the south, along the bluffs overlooking the Andreafsky River, 20 St. Marys villagers were moving their families into new houses. Today, those homes are in much the same battered shape as those in St. Michael.

Theresa Mike, mother to 11 children, lives in a house where the interior walls have separated from the roof. The gap between the two is wide enough to stick a fist through. Her kitchen pipes leak, so most of the time she keeps the water turned off. Her hot water heater broke down years ago, so none of the kids ever takes baths in the tub. The house's foundation needs to be shored up.

Mike is a big woman who wears a long dress and floral apron. She prefers to speak in her native Yupik, but will switch to English for a visitor.

She says her husband is in jail, so she is raising her family alone.

In December, she heard news of the new settlement reached by home buyers with the federal government. Since then, she's been mulling over her options. Should she get the house fixed by the government and continue her 370-a-month payments? Or should she opt for no renovation, but title free and clear to the house?

It would be nice to get the house fixed up, she says. But she isn't sure she can afford that option. At times, she hasn't been able to come up with the monthly payments and has been threatened with eviction.

Perhaps it's best to take title to the house, she says. Repairs can await another day.

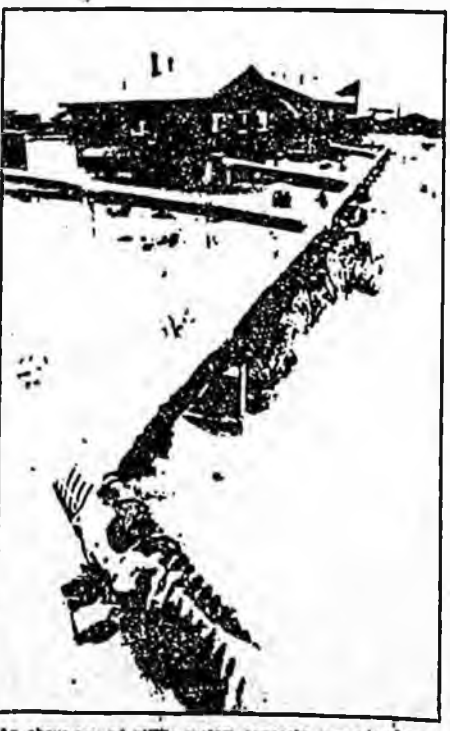
To date, all but a handful of the Alaska 500 homeowners have chosen to settle the suit by foregoing repairs and taking title to the houses.

That choice troubles Andrew Paukan, mayor of St. Marys. He doesn't see much hope for the Alaska 500 in his town without a lot of work. "If they keep shifting, they won't withstand another 10 years. We'll have to tear them down and rebuild."



The cabinets in Theresa Mike's home in St. Marys are coming apart.

Daily News photos by Bob Hallinen



An above-ground utility system connects newer houses in Bethel.

Living in the mistakes of the past

Houses are slums after only 10 years

By HAL BERTON
Daily News reporter

ST. MICHAEL — Three west winds bring a blast of chill Siberian air to the island village of St. Michael. Lee Kobak huddles indoors and tries to keep his family warm. He tucks a blanket across the back door, puts an electric heater in his bedroom and turns his fuel-oil stove up full blast.

In the worst of the winter cold snaps, when the outside temperature may dip below minus 30, Kobak still can't muster enough heat to keep his house comfortable. Frost forms along the living room wall, he roasts electrical sockets and water may freeze when spilled on the kitchen floor.

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A decade after their completion, many of the houses are falling apart. Floors are rotting, joints separating and some houses are in danger of sliding off their foundations. Kobak can shove a knife blade through the cracks along the base of his living room wall.

"When they were building

See Page E-2, ALASKA 998



Andrew and Esther Oton stand in front of their old house, left, and their new home.

Designers slowly learn how to build housing in the Bush

By HAL BERTON
Daily News reporter

ST. MICHAEL — From the outside, the house looks quite ordinary — boxcar shape, ruff-like foundation and metal roof. Only a fresh coat of yellow paint distinguishes it from much of the other Native housing built in this western Alaska village.

But step inside on a sub-zero, mid-winter day. With the aid of a small fuel-oil furnace, the house stays warm. No ice on bedroom walls. No ice inside the windows. No bugs heating bills. To St. Michael villagers, this house — just completed in December — seems like a major step up.

"Everybody in town, they look at this and say, 'where were these houses 12 years ago,'" said Albert Washington, St. Michael's mayor.

The St. Michael house is an example of a new wave of federal housing in the Bush — better designed and better insulated than predecessors built in the 1970s. Although not without problems, the



Daily News photo

new dwellings are helping improve the tattered reputation of federal Native housing projects in rural Alaska. These projects offer villagers the chance eventually to take title to the houses through monthly payments. The size of the payments is pegged to their incomes.

A decade ago, many of the Native houses built in Alaska proved better-suited for milder Lower 48 climates. Nearly a thousand dwellings — low-budget affairs put together with the aid of villagers who often lacked construction skills — went up throughout western and interior Alaska. Housing materials were of poor quality. Foundations ill-

designed. Hundreds of the houses now seemed destined for early obsolescence.

Today, the permafrost and intense cold of the far north still pose formidable construction challenges. But in a long and sometimes painful learning process, designers are figuring out ways to build better Bush housing.

The St. Michael house, a prototype developed by Phil Kaluna, a Nome builder, features a double outer wall stuffed fat with insulation. Triple-pane windows — made by a Fairbanks manufacturer — help keep warm air trapped inside. When the air gets stale, a heat exchanger sends the air outside and draws in fresh air. The furnace, controlled by a computer sensor, is nearly twice as energy-efficient as old-style systems installed in many of the neighboring houses.

Design Lab Inc., an Anchorage-based architectural firm, also has worked to improve the quality of Bush projects. During the past decade, it has designed about 1,300 houses for regional

housing authorities funded by the federal Department of Housing and Urban Development. In the interior, it has created Indian homes of log. In the Yukon-Kuskokwim Delta, houses feature 10-inch-thick walls and heavily insulated floors and ceilings. In Southwest, the firm has experimented with a double-walled structure.

Foundation systems also have changed. A decade ago, house sites often were flat spots bulldozed out of the tundra. With the protective insulation of the vegetative layer stripped away, these sites turned to bogs in warm weather. Houses built on these sites tended to lean on their pads as the wooden support systems sank into the soggy ground.

Since then, two different tactics have been taken to deal with the permafrost. Some designs call for metal pilings to be driven through the permafrost layer and into solid ground. Others designs leave the tundra intact, then insulate with special synthetic pads and gravel wherever

possible. The wood foundations are built on top of this cover. Each year, as the ground settles, they are leveled with jacks.

Federal officials who fund the housing projects view the new designs with cautious optimism. Many of the old problems that plagued the 70s-vintage houses have been vanquished. But in the process of curing old problems, new ones have arisen.

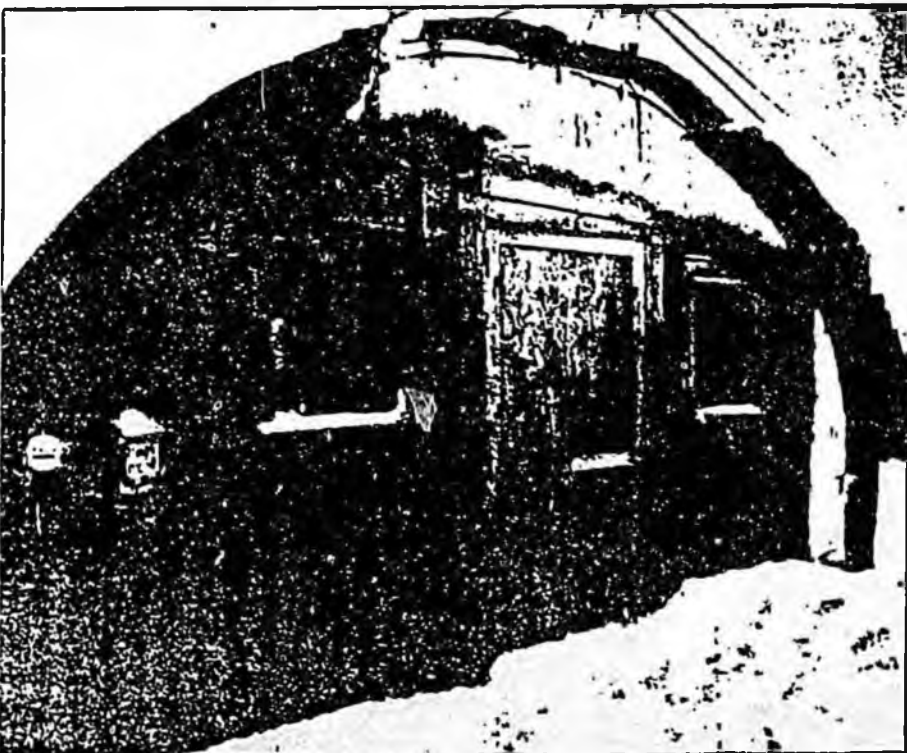
About 800 of the more than 3,000 late-model project houses have major design problems the federal government is spending \$8.4 million to repair, said Miller Lutton, director of HUD's Alaska housing program. These houses are scattered about more than 40 Alaska villages.

"If you counted the number of innovative houses that have been tried in Alaska, you could count over 100," Lutton said. "Many appear to be successful. But you got to put them out there for a while."

Almost all of the new houses

See Page E-3, LEBOWEN

LESSONS: Designers slowly figure out how to build houses in the Bush



An abandoned building in the Leasestown area of Bethel

Continued from Page E-1

are perched up off the ground on wooden stilts. To keep cold air from blowing up underneath the house, some weatherization teams and home buyers leave put particle board shirting around the stilts. The shirting not only keeps out the cold air, it holds in the warm air, so the soil, that may cause the permafrost to melt. Once that happens, some foundations have begun to sag and tilt-destroy, Amaya said.

Even when design problems are overcome, houses still may not meet early expectations. Most of the houses now are built by contractors, and housing authorities are finding they need tough quality control to make sure the jobs get done correctly.

In a recently completed housing project in Scammon Bay, for example, Felix Grant, a villager who worked on the project says construction crews rushed through the job. They didn't nail down all the walls and left some wood supports out from under some floors.

When Grant moved into his new house, he found the vinyl floor unraveling and soaked with fuel oil. "There are lots of problems," Grant said. "The whole plywood floor should come out where it's soaked with fuel oil."

John Gwinn, director of the Association of Village Council Presidents, the Bethel-based housing authority that developed the Scammon Bay project, says he's aware of some

6 If you counted the number of innovative houses that have been tried in Alaska, you could count over 100. — Miller Lutton

problems with new houses. The contractor has been asked to go back and fix them, he says.

Gwinn also has been working to get village home buyers to take care of more of their routine maintenance in theory, when a toilet plugs up, a window breaks or the house needs a fresh coat of paint, the home buyer is to be responsible for repairs.

But home buyers often lack the inclination or the skills to do such work. And their villages often have no hardware stores to supply parts. Many look at the housing authorities as landlords, whose staff should fix whatever goes wrong.

Since the late 70s, Gwinn says his Bethel housing authority has built more than 400 houses in Kuskokwim-Yukon Delta villages. But the program still has fallen far short of meeting all the needs in his region for low-income housing. "There are 36 villages in the area, and there are a lot left that haven't had any housing."

More than 10,000 houses are needed in the Bush, Amaya said.

ALASKA 500: 10-year-old federally financed houses now falling apart

Continued from Page E-1

these houses, they were thinking of the Lower 48," says Kobuk's wife, Katherine. "They are not built for Alaska."

Andrew and Esther Otten, the Kobuks' neighbors, have caulked up most of the cracks in their inside walls. But on a blustery day, the wind still freezes the moisture to the living room panelling.

The Ottens hung up a tapestry in the house proclaiming "Home Sweet Home." But Andrew Otten said he sometimes has second thoughts about the federally financed housing.

"My old house used to be warmer. I had two rooms and it didn't use that much oil."

The Alaska "500 homes" now hold an infamous niche in the history of a gargantuan federal effort to bring modern housing to Alaska's villages. The federal Department of Housing and Urban Development — working largely through regional housing authorities — has spent more than \$500 million to build more than 4,500 houses in rural Alaska.

The program has sought to improve the living conditions of Alaska Natives by moving them out of overcrowded shacks and cabins and into more spacious, better-built housing. Wherever possible, the houses were coated up in new sewer and water systems developed by the Public Health Service. Villagers then became home buyers, obligated to make modest monthly payments that eventually allow them to take title to their houses.

Today, the program is nearly 20 years old and has replaced much of the ramshackle old housing in the Bush. By many standards, it can be measured as a success.

In recent years, architects have adapted innovative insulation systems, foundation designs and construction techniques to create a new generation of public housing. Some of these homes suffer from design defects, but most are better able to withstand the rigors of Alaska's permanent and sub-zero cold than the early housing of the 1970s.

As overcrowding has decreased, the incidence of tu-

berculosis, once a major killer, has declined. And life expectancies have increased. Better housing has helped slow the rural migration to cities. In many villages, populations have stabilized or begun to increase, said Miller Lutton, director of the federal housing program in Anchorage.

But the program has a mixed legacy. In learning how to build good housing, the government has financed a lot of bad. And many people are still living in the mistakes of the past, saddled with sagging foundations and fuel bills they can ill afford to pay.

Kobuk says he uses more than \$250 a month worth of fuel — three-and-a-half 55-gallon drums of oil — during the worst of the winter cold. Federal assistance pays only part of the bill.

Rafael Afran, an aging carpenter living in another federally financed house in St. Marys, a Yukon River village, says his fuel bill leaves him with little money for groceries. "Sometimes, it's a question of paying for heat or paying for food."

All told, the problem houses include about 1,000 houses built between the late '60s and the late '70s representing about a fifth of the total federal project units. These houses are riddled with design and construction flaws. Some have been abandoned or razed to make way for replacements; the rest still are inhabited.

Some of the worst housing is in St. Michael and seven other western Alaska villages. Here, more than 40 percent of the housing is of the Alaska 500 vintage. Many of the houses "are in danger of collapse or self-destruction," wrote Dan Harrison, executive director of the Bering Straits Housing Authority, in a 1984 report to federal officials.

Harrison listed faulty wiring, foundations sliding off their earthen pads, deficient insulation, mildew and rot among the houses' many problems.

Villagers, disappointed with the quality of the homes, joined with other Alaska 500 homeowners in a class action suit against HUD for failure to deliver on its promise of a



Andrew and Esther Otten in their home in St. Michael

"decent home in a suitable living environment."

In a recent out-of-court settlement, the agency offered to try to repair most of the design and construction defects of the Alaska 500 homes. As an alternative, a villager could simply take title to his home, as in:

Most villagers chose to take the house and forget about the costly fix-up job. "I decided it would take years to get any of the repairs done," Kobuk said.

The federal housing program in the Bush was launched in the mid-'60s as national efforts to attack poverty in America reached a fever pitch. East Coast journalists trekked to Appalachia, the Midwestern ghettos and the Southern farm belt to profile the plight of the poor. Then, in the summer of 1968, Homer Bigart, a New York Times reporter, reached Alaska, and proclaimed the Kuskokwim-Yukon Delta the poorest place in the nation.

"The worst slums in the United States are not in racially turbulent quarters of New York, Cleveland, Chicago or Los Angeles," Bigart wrote. "By all available indices of poverty, they are sparsely strewn, like garbage

on an ice floe, along the nation's desolate sea frontier with the Soviet Union."

The Eskimos that Bigart encountered had largely abandoned traditional homes of sod, driftwood and whale bone in favor of small log cabins and shacks of plywood, tarpaper and tin. Subsistence foods, not measured in standard poverty indices, helped make up for a lack of cash to buy groceries. But diet alone could do little to combat the diseases that ran rampant in the cramped, overcrowded housing.

In Kuskokwim Delta villages, 12 out of every 100 babies died before age 1. Tuberculosis, introduced decades earlier by whites, was a major killer of Eskimo and Indian adults. The Natives had a life expectancy one-half that of the average American.

Two years after Bigart's report, a Senate subcommittee led by Sen. Ted Kennedy, D-Mass., arrived in Bethel to tour a dilapidated section of riverside property known as Louistown. The area was such a mess that several senators didn't even want to get off the bus, recalls Gene Pampolina, a Bethel resident who accompanied the senators. Kennedy, followed closely by Sen. Walter Mondale, D-Minn., disembarked, gingerly walked up to a garbage dump and discovered a dead dog frozen to the ground.

Finishing his tour, Kennedy vowed to build new housing in Bethel. Within months of his return to Washington, the money was in the pipeline.

The first federal funds flowed to the Alaska State Housing Authority, which quickly launched a series of village housing programs. In many cases, these houses "began to deteriorate within moments of the last nails being driven," wrote one ASHA of-

ficial in a memorandum forwarded to Alaska Sen. Ted Stevens. "The common complaints ... consist of ceiling tiles coming apart; from accumulating six feet high on the walls; cabinets coming off the walls; sagging, buckling ..."

Instead of winning Bush support for its housing programs, ASHA was hit with class action lawsuits filed by Alaska Legal Services lawyers. ASHA ended up giving away 200 of the houses to homeowners. Another 300 homeowners, in a settlement funded by the federal government, obtained new houses.

These fiascos convinced ASHA that it wanted no part of any new Bush housing projects. "It has been said that even if ASHA could walk on water, it would nonetheless drown in the Bush areas," the ASHA official wrote. "The animosity of the purchasers towards ASHA ... as a result of these programs is immense. These people feel that they have been lied to and that representations have been made that were not kept."

Despite ASHA's withdrawal from the Bush, the federal pipeline of housing dollars kept flowing. In 1975, it reached north to St. Michael. Back then, many St. Michael villagers lived in cabins and shacks left over from the boom days of the Gold Rush. During the early 1900s, St. Michael was a town of more than 10,000 people, the major port of entry for goods bound to the gold fields of the upper Yukon.

After the Gold Rush, most of the whites left. By the time the federal housing project began, St. Michael's population had dwindled to less than 400, mostly Eskimos. For lodging, some lived into the old log dwellings left behind by the Army; others had placed together plywood and tarpaper shacks.

The St. Michael project was an attempt at self-help housing: home buyers themselves would build the houses and would be paid for at least part of their labor. To ensure quality housing, the Bureau of Indian Affairs was appointed to develop design and supervising construction. Regional housing authorities were created to administer the program.

The program, which encompassed 500 houses in 19 villages, may have looked good on paper, but it unfolded in a chaotic series of events. Most of the houses, pre-cut into piece-together packages by an Oregon manufacturer, were barged north in the summer of 1975. One of the barges sank in the Bering Sea. The rest of the houses arrived safely in the villages.

In the frenzied months of construction, there proved to be scant time for quality control. The villagers proved largely unskilled in home building. And in some regions, feuds between the BIA and regional housing authorities prevented inspectors from ever setting foot in the villages.

At many sites, the fragile layer of tundra that helps keep the permafrost cool was stripped away to prepare for the wood foundation pad. That meant the permafrost would melt, turning into a soggy bog when the temperature warmed. Insulation and plywood were soaked by the rain, then slipped into the holes. The wet insulation lacked heat-retention value, and the plywood gradually rotted.

Poor-quality materials and design problems compounded the errors of faulty construction. The windows, for example, even if installed properly, let in lots of cold air. The fiber board cabinets were made cheaply. Even when nailed firmly to the walls, they tended to self-destruct. Tops fell off drawers and doors off shelves.

Still, when the homes finally were finished, people were eager to move in, recalled Albert Washington, mayor of St. Michael. "First cold weather we got, everyone was excited. They thought they were going to be warm. Then they found out how cold the homes were. The kitchen stoves couldn't even begin to heat the homes."

One hundred miles to the south, along the bluffs overlooking the Andreafsky River, 20 St. Marys villagers were moving their families into new homes. Today, those homes are in much the same battered shape as those in St. Michael.

Theresa Mike, mother to 11 children, lives in a house where the interior walls have separated from the roof. The gap between the two is wide enough to stick a fist through. Her kitchen pipes leak, so most of the time she keeps the water turned off. Her hot water heater broke down two years ago, so none of the kids ever takes baths in the tub. The house's foundation needs to be shored up.

Mike is a big woman who wears a long dress and floral apron. She prefers to speak in her native Yupik, but will switch to English for a visitor.

She says her husband is in jail, so she is raising her family alone.

In December, she heard news of the new settlement reached by home buyers with the federal government. Since then, she's been mulling over her options. Should she get the house fixed by the government and continue her 370-a-month payments? Or should she opt for no renovation, but title free and clear to the house?

It would be nice to get the house fixed up, she says. But she isn't sure she can afford that option. At times, she hasn't been able to come up with the monthly payments and has been threatened with eviction.

Perhaps it's best to take title to the house, she says. Repairs can await another day.

To date, all but a handful of the Alaska 500 homeowners have chosen to settle the suit by foregoing repairs and taking title to the houses.

That choice troubles Andrew Paukan, mayor of St. Marys. He doesn't see much hope for the Alaska 500 in his town without a lot of work. "If they keep shifting, they won't withstand another 10 years. We'll have to tear them down and rebuild."



The cabinets in Theresa Mike's home in St. Marys are coming apart.

Daily News photos by Bob Hallinen



An above-ground utility system connects newer houses in Bethel.

Home/Family

E

Ice be dammed

By ANN CHANDONNET
Times Writer

Poor insulation causes buildup



Masses of glistening icicles catching the winter sun may remind you of Norse myths, snow queens and fantasy.

But to a homeowner, they're more bothersome than beautiful.

A dense string of icicles at the eaves, hanging like gleaming stalactites to the ground, indicates inefficient heating, heat loss and poor insulation. Other signs of the same problem include spots on the roof that are completely bare of snow, and a pattern of trusses or roof supports visible in the frost.

Alaska, land of skis and sled dogs, seems an unlikely place for heat-inefficient dwellings, but examples are everywhere — and especially easy to spot at this time of year. The lumps of ice that accumulate along the cold edges of the roof are called "ice dams," and they're just one symptom of the problem.

Growing concern for waste of natural resources is causing many Alaska homeowners to take a new look at the ways they use energy. And one of those looks should be an appraising one cast at the roof. A heavy snowfall obscures the problem for a while, but within a few days the telltale indicators show up to tell homeowners (and their neighbors) that money and heat are being squandered through heat leaks.

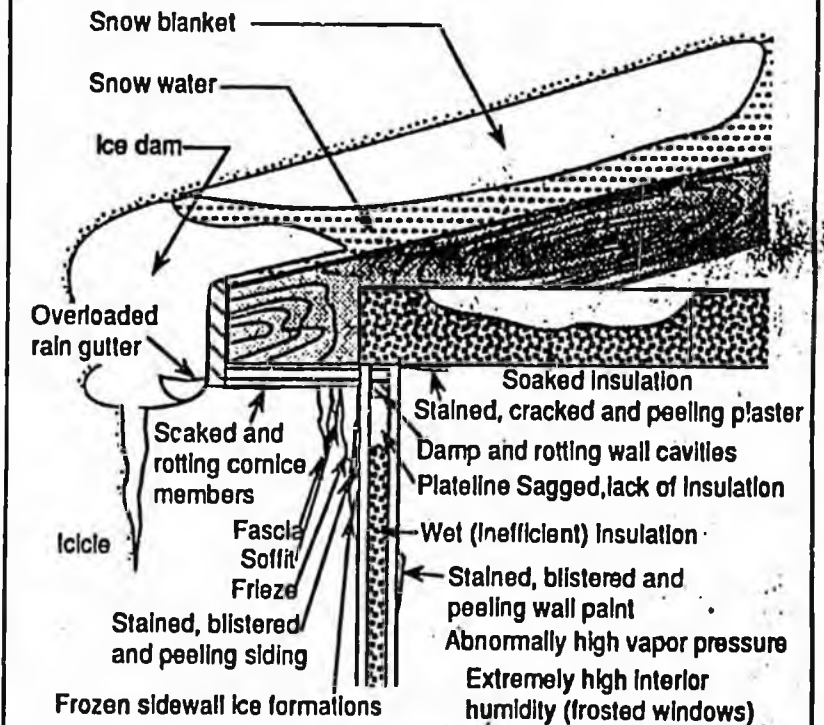
Poor insulation causes ice dams to form. When heat is allowed to seep upward into the roof sheeting and covering, it causes the snow on the roof to melt. As water runs downward to the edge of the roof, it refreezes. Drainage continues, and a pool of water accumulates on the upslope side of the dam. The water pool then often leaks back through the roof and is absorbed into the insulation, sheetrock and, finally, the walls. If the problem is not corrected, the interior can suffer thousands of dollars worth of damage.

Stained ceilings, browned plaster, peeling wallpaper and paint or mold in the corners are typical energy-leak indicators in local homes. As temperatures rise outside after the annual January-February cold snap, these eyesores routinely appear.

Where does all this moisture come from? Although Alaska has a dry climate compared to, say, New England or Hawaii, most homeowners do not realize how much damp is generated by the household each day. Plants, showers, cooking, respiration and perspiration produce 5 to 8

Common and costly ice damages

This diagram shows both the ice dam and its damages. All the damages illustrated here are far more common and costly than are generally acknowledged.



Source: University of Minnesota,

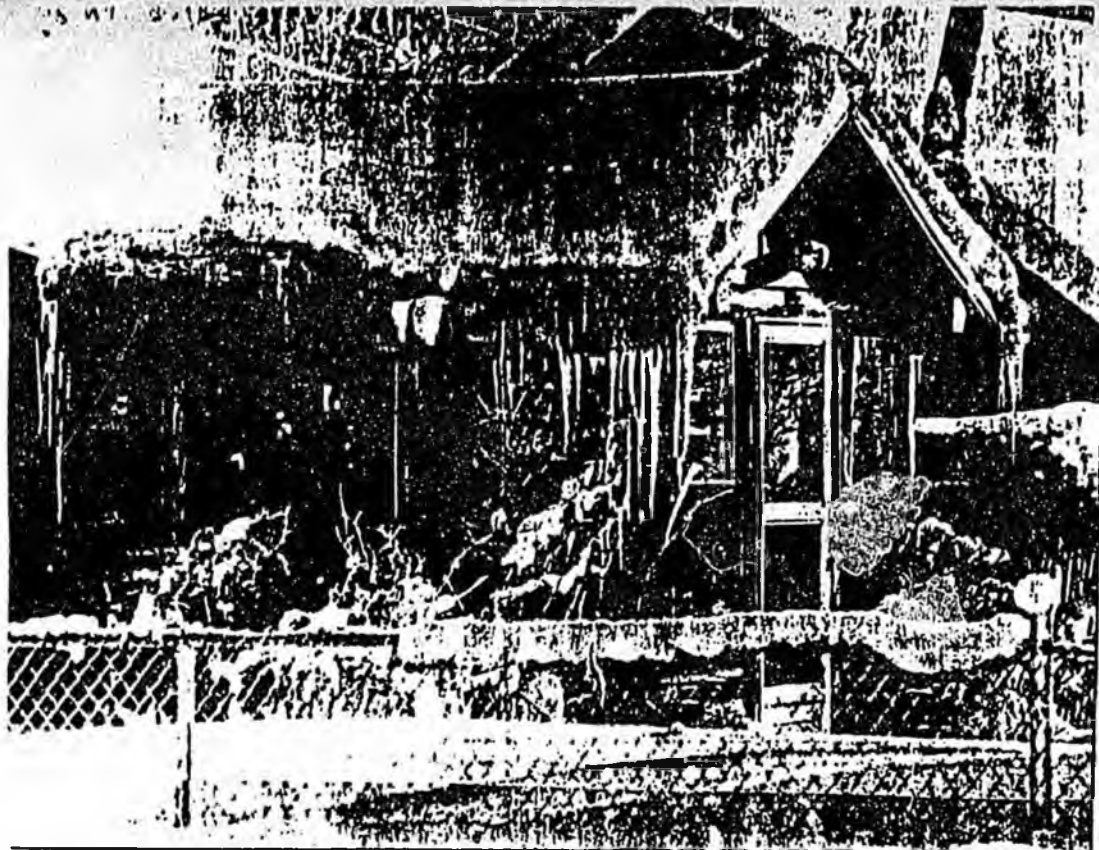
Times graphic by WIT TUTTLE

gallons a day in vapor form, says energy expert Steve Baden of Anchorage.

During the dry winter, the house tries to equalize climates between inside and outside by forcing moisture out. If the water cannot escape and freezes in the crawl space, it may later thaw and fall down into the living room, ruining the ceiling.

Steve Baden is chief of energy programs for the Alaska Department of Community and Regional Affairs. He has been in the energy conser-

See Ice dams, page E-2



Times Photo by WALT JOHNSON

ful glistening icicles you see lining the eaves of some homes actually are a sign of poor insulation.

vation field for 10 years.

"Ice dams are a big problem around Anchorage," Baden says, "and they don't necessarily have to be. By taking care in the initial construction of the home, you can do things to prevent the situation. What you see when you see an ice dam is a symptom — not the problem itself," he stresses. "One of three things is happening, or a combination. The basic problem is that the roof is hot, and the heat is melting the snow. As the water hits the edge, which is cold, it's freezing and backing up." This means the roof is under-insulated, says Baden. Occasionally, the roof truss will be too low and the contractor was unable to insulate the side of the truss properly.

"When you can see the trusses

outlined in the frost, which means the trusses have more insulating value than the actual insulation, this shows significant heat loss," Baden says.

However, ice dams can also appear at the edges of roofs that are properly insulated, "but because the vapor barrier wasn't properly installed, the insulation has become wet and lost its insulating value."

A third cause of an ice dam is that there is insufficient ventilation in the attic or crawl space to dissipate what heat makes it through the ceiling insulation, Baden says.

"Some heat will escape, no matter what," says Baden. "And you must have enough ventilation in the attic to take that heat and dissipate it so it won't warm the roof. Otherwise, your hard-earned dollars are going out in melting snow."

The key to energy efficiency is "doing it right the first time," advises Baden. This would be easier if Alaska had different

building codes. "Alaska is one of the only states in the country without energy standards for insulation," adds Baden, "even though we have the highest cost of energy and the coldest temperatures."

Existing Anchorage building codes have a standard of R30 in the roof and R19 in the walls. This standard has been proposed as a state standard, says architect Stuart Brooks. The state proposal includes "a proper vapor barrier, proper ventilation both in the living area and the attic. It would be necessary to have a raised truss in the eave, more raised than current building standards," Brooks said, "to allow for insulation."

Even if adopted, this proposal would be limited in effect because it would apply only to homes that are state-financed, Brooks points out. "The new standard is held up in the courts, but House Bill 358 would address this technicality." There would solve only part of the energy effi-

ciency problem because there would still be no proper standard for homes that are not state-financed and existing homes would not be addressed, Brooks and Baden concur.

The Department of Community and Regional Affairs, energy conservation section, advises homeowners of some steps they can take to right existing construction wrongs:

- The condensation problem is worse in rooms with high relative humidity — like bathrooms. Paint the ceiling with Glidden Insul-Aid, or install a polyethylene vapor barrier and replace the ceiling.

- Condensation of ice or snow buildup on the inside of, or between, windows is another sign of energy waste. Quality windows combined with proper weatherstripping or caulking can often solve this problem.

- Drafts due to cracks around doors and window jambs can also be minimized with weatherstripping and caulking.