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All one has to do is to drive around the Fairbanks area and look at the housing which is settling, (several feet in some cases) and see them breaking up, knowing there is little to be done to save them.

Basic soil types in the Fairbanks area are schist, bedrock, gravels and sands, wind blown loese (on the upper hill sides), and organic silts (in the lower areas).

It is in the organic silts where permafrost is most likely to be found, although it can be found on the higher slopes especially on the north side of the ridges.

Gravels and sands usually provide a good foundation for structures. The gravels found in the Fairbanks area are usually well graded and when compacted provide a good bearing surface. Sands, unless they are silt infiltrated, likewise provide adequate bearing surfaces.

The bedrock in the Fairbanks area if solid and competent, provides an excellent bearing surface. If it is in a decomposed state it needs to be carefully examined prior to construction.

The silts, if dry, provide good bearing surfaces but if wet usually must be avoided. The organic silts, in particular, are bad for construction for several reasons. They are normally associated with permafrost (although not always). and they hold and retain large quantities of water. In addition, if the organic content is high enough they have a high compressability factor and will tend to settle with time.

There are two kinds of frozen grounds. One is seasonally frozen and the other is permanently frozen. Permafrost is generally described as a soil material which has been frozen continuously for a period of two years or more. Seasonal frost deals with grounds which freeze in the wintertime and thaw the following summer.

Frozen soils provide the most hazardous conditions for construction. The hazards are usually associated with the thawing of the soils once construction is completed. If one can keep the material frozen, then the house will remain stable. However this is difficult to do and requires special construction techniques. The problems with the thawing soils is not only the shrinkage of the soils due to loss of the ice matrix, but also the compaction of the soils due to a high liquid content. In many cases the frozen soils have free ice and settlement upon thawing can be massive. In addition if the house is built on any kind of a

slope, then there is a possibility of subsurface flowing which again causes settlement of the structure.

Seasonal frost which occurs in the Fairbanks area is generally accepted as being four feet deep although variations of depth can occur due to exposure, moisture content and type of soil.

The basic types of foundations include the continuous footing and foundation wall, post and pads, piling, and special foundations utilizing refrigerated devices to keep the ground permanently frozen. Both wood and concrete are utilized in foundations and have their own individual uses in different soils situations.

Concrete footings and walls have an excellent feature in that they will bridge minor soft spots beneath the footing and provide uniform support for structures. Therefore these types of foundations usually assist the contractor who otherwise may be somewhat careless in his compaction or selection of soils.

On the other hand wood foundations tend to yield where a soft spot occurs allowing a house to settle causing internal cracking and other unsightly features. However compared to concrete the wood foundation wall is much easier to work with if repairs must be made.

Post and pad foundations are normally utilized in permafrost areas and for smaller cabin type construction wherein the support requirements are not as great.

Pilings are likewise utilized in permafrost areas and sometimes are associated with the refrigerated systems which are designed to keep the ground permanently frozen.

Most often the foundation failures that we have witnessed have been involved either with super saturated soils with high organic content or with permafrost which is in the thawing stage.

Failing foundation systems present the greatest problems for engineers to solve. The most common system used is to underpin the existing foundation with large footings to reduce the load on the soil. In most cases this will arrest the settlement rate and provide the needed stability.

An additional process involves raising the structure in the air and installing a large gravel pad which again assists in the distribution of the weight over the soils.

In most cases this results in a more uniform settlement rate with little or no distress showing in the structure. Eventually, equilibrium is established between the weight on the soil and its ability to support it at which time no more settlement occurs. Another technique utilized is an adjustable foundation concept, wherein the existing foundation system is underpinned with a new foundation, consisting of large concrete pads and posts designed specifically for vertical adjustment. These types of systems will allow the house to be releveled on an annual basis if settlement occurs, which will provide for the longevity of the structure without its destruction.

Settlement which has occurred in otherwise competent soils is usually from a lack of compaction by the builder prior to construction of the house. This type of situation can be made stable by one of several techniques. Usually the house is temporarily supported and the soils are force consolidated by water injection, mechanical compaction, or high pressure grouting. Once the soils are compacted then the foundation is repaired.

Permafrost soils are the most difficult to deal with from an engineering perspective. Once thawing has started it is very difficult to arrest it or to arrest it in a uniform manner. The only technique for arresting the thawing of permafrost is to install a refrigerated system which extracts the heat from the ground and keeps the underlying permafrost from thawing. This type of technique has been utilized all over the State where ever permafrost is found. It requires special knowledge and special installation techniques. In addition, annual maintenance and monitoring must be performed to assure the system is functioning properly, therefore, it is a type of system which is only utilized in special cases for residential use. This is due to the lack of knowledge and expertise of the average home owner in monitoring the system.

There are other types of techniques to be used in permafrost which include the installation of deep piling into the permafrost layer, hopefully into underlying gravel layers to provide support during the thawing process. Another technique is to deeply force thaw the area to achieve the initial consolidation prior to construction.

If it turns out frozen soils are found after construction and it is in gravels and sands which have a low moisture content, then little or no work should have to be done to the structure, as these types of frozen soils will settle little or not at all during the thawing process. However, in the case of silts, where free ice may be

present, settlement can be rapid and massive during the thawing process.

The cost for any corrective measures in permafrost is usually very high and can in some cases exceed fifty per cent of the value of the structure. Therefore, repair work must be carefully considered as to not only effectiveness but as to total cost.

If it is determined that a refrigerated system is a viable alternative then it should be considered. However this system must be very carefully designed and requires extensive knowledge of the soils prior to installation. In addition the contractor performing the installation should be employed on a yearly basis to check the system to assure its proper functioning. In addition, a monitoring system should be installed so that ground temperatures can be measured on a seasonal basis and modifications to the system employed so that a stable freeze/thaw regime is achieved.

IDENTIFYING FOUNDATION PROBLEMS

The systems of foundation problems can take many forms. The most notable are cracks in walls and slabs along with unevenness of floors or preceptable tipping of the house. In addition sticking doors and windows can be signs of settlement. Site location can be very important by recognizing that the house is located in a known poor soil area. If potential problems exist then an engineer should be consulted. The engineer may order several tests, including soil borings, doing level shots on the house, and examining available records such as well logs, previous soil borings and information gleaned from the neighborhood to determine the nature and cause of the settlement.

A thorough examination of the foundation system then follows and the problem identified. Once identification of the problem is made then one or more remedies may be selected.

STRUCTURAL AND OTHER PROBLEMS ABOVE THE FOUNDATION LINE

Sometimes problems occur in structures which are not associated with the foundation system. In particular areas which can cause problems due to poor construction are the lack of adequate headers above openings such as doors and windows, beams and trusses which are too light to carry the

loads placed upon them, floor joists with too great a span and improper use of plywoods and other construction materials.

The usual signs of overloaded beams and joist is sagging and cracking of walls somewhere near the midspan of the element.

In addition headers over doors and windows allow sagging and compression into the window or doors. When these conditions are found, there are numerous techniques which can be utilized to remedy the situation. This usually results in the addition of supports, the building up of beams, and the installation of new and stronger headers above windows and doors. Some solutions can be inexpensive while other solutions which require tearing out of portions of the house can become rather expensive.

Underdesigned trusses, if they have not already reached a high level of failure, can be repaired in place. This is usually accomplished by providing temporary support, jacking them back into a level position and then installing additional struts, gusset plates or other supports as required to strengthen them.

CONCLUSION

The housing industry is going through an introspective period. Mistakes of the past are readily visible and measures are being taken by everyone involved to solve the current problems. It is hoped that history will not repeat itself.

Foundation and other types of structural failures are being dealt with in innovative ways. Even though it appears that problems are numerous and overwhelming in magnitude, both the engineers trying to solve the problems and the contractors performing the work have gained new knowledge. This knowledge will be invaluable in the future to keep from repeating the mistakes of the past and to improve construction techniques of the future.

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QUALITY OF CONSTRUCTION IN AHFC FINANCED PROPERTIES

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THE PROBLEM

In 1978, a young couple purchased their first home in the foothills above Fairbanks. It was not their dream house but for a start, they thought it was a good investment. Having paid close to \$80,000, thoughts of any major problems seemed remote.

Everything seemed fine as they entered their first winter, that is, until small annoyances began to happen. The furnace in the small closet in the hallway would not run with the door closed. The doors did not close as well as before, some got stuck after they were closed. They noticed that snow did not stay on the roof much. It was always dry. There were light switches that appeared to operate nothing and outlets that did not work. All these were small, as I said, and sort of expected by the new homeowners.

It was not until a friend came over to investigate the light switch to nowhere that the true condition of the house came out. The switch did actually go somewhere. It operated the smoke alarm so that one could turn off the noisy thing when it went off as it often did when the furnace backed up because of an improperly installed draft damper. A rather convenient switch, don't you think? The fellow who wired the switch decided that since it only ran the smoke alarm, he could use lamp cord for the wire, besides, it is so much easier to work with.

This was just the beginning of the nightmare. After a thorough inspection of the house, the following was discovered: The entire basement was wired with lampcord. Lights, switches, outlets, every bit of electrical in the basement was common two wire lampcord. On the top level, the lampcord was used to add outlets and power the exhaust fan. The main service into the house was spliced in the crawlspace using an unsafe method. The output of the furnace was too small for the house and the ducts for the forced air were in the attic, small wonder the roof stayed dry. The floor of the basement looked like a rolling ship at sea. The same level was not maintained for more than eight feet at a stretch. The reason for this was simple. The foundation was large roughcut timber resting on bolts attached to two posts in the ground. The bolts were carrying the weight of the house. The plumbing drains were taped and silicone caulked together at every joint. I hope you can get the picture from this description. Everywhere you turned, something was wrong.

You might imagine the family's surprise when they were told that the home was not safe for habitation and they should move immediately. This was a home appraised by a reputable appraiser, sold by a licensed realtor, handled by a reputable bank, and FINANCED BY ALASKA HOUSING FINANCE CORPORATION.

The couple eventually did move and the bank did take back the house, however, the couple lost their downpayment and all the payments they had made. They walked away safe, but poorer for the experience. **THAT WAS TEN YEARS AGO.** As of this writing, AHFC does not require that homes mortgaged by them meet any building code or minimum standard.

Homes are still being mortgaged that have been built by unlicensed builders and other persons who may know little or nothing about construction. The houses that AHFC mortgaged during the past ten years are now being repaired at great expense as the repossessions are upgraded for sale.

It is interesting to note that these repossessed homes were mortgageable with unsafe electrical wiring, improperly installed heating systems, questionable foundations and structural members, and no bedroom egress windows. These same homes, however, must be upgraded before AHFC sells them. I agree that the homes must be safe, sound and sanitary but who is paying for this? Because there were no standards in effect for an AHFC loan, the people of Alaska are now repairing homes that should never have been financed.

The easy part of this dissertation is over. Pointing out the wrong is always easy. Having solutions is the hard part. You and I can make a difference in the quality of housing that will be built in the future by making a few hard and fast rules about the type of house AHFC will finance.

When I came to Alaska 15 years ago, I was attracted by the freedom that residents enjoyed here compared to other states. One of those was the ability to build one's own home without having ten inspectors breathing down your neck and requiring a permit for everything from window awnings to a backyard patio. I am still attracted to and in favor of these freedoms. I believe we should be able to build our own home any way we choose without government interference. This freedom, however, should be exercised only if we build the home without state financing and never sell it.

Once the home goes up for sale or the builder/owner wants state financing, then we as the public should have some protections. Every home should meet minimum code at the time of sale or state financing. This would protect the homebuying public yet preserve our freedom to build as we wish.

This sounds simple but the real problem lies in the implementation. How do we determine if the homes meet code when no inspection is available outside the large cities and municipalities? Few people even realize that some building codes are in effect statewide.

THE SOLUTION

The implementation would take some legislation. The cost of inspection, however, could fall to those who use it and not to the citizenry at large as all state inspections do now.

I propose that **three steps** be taken to insure that all homes financed with state funds meet minimum standards of safety, soundness, and sanitation.

- 1) **Legislation must be passed to require all homes financed with state funds meet minimum building standards set forth in the National Electrical Code, the Uniform Plumbing Code, and the CABO One & Two Family Dwelling Code. The NEC and UPC are already law in the state and apply to residential housing. The One & Two Family Dwelling Code would have to be adopted by the State for residential housing.**
- 2) **A Board of Building Inspectors must be created to set standards of competency for licensing of persons working as home inspectors within the state. The Board would be three members, two home inspectors and one public member. The testing and certification could be taken care of by the International Conference of Building Officials. ICBO is the recognized expert in the U.S. on building codes and puts out the Uniform Building Code. They already have proven tests for competency and expertise in building inspection. Licensure by the State Board would occur after the person showed background knowledge in construction and certification from ICBO.**
- 3) **Alaska Housing Finance Corporation must change loan policies to require certification from a licensed home inspector prior to making a mortgage on a home. This policy would apply to old and new homes alike. The older homes would be required to meet the code that was in existence at the time of construction. The new homes would meet the current code. The cost of bringing the house up to code would fall on the owner or builder. The cost of inspection would fall on the buyer or seller, depending on the situation. The only cost to the state of Alaska for enforcement and implementation would be the cost of the Board, and much of this cost would be offset by license fees.**

The practice of having an home inspected before purchase is accepted among the homebuying public, however not everyone does it. You may argue that this only hurts the homeowner. That may be true, however, if that homeowner defaults on his or her loan, then we the Alaskan people must pay to bring the home up to code.

It will take qualified inspectors who are familiar with the building codes and their application to adequately determine if

the home is built to the minimum standards. An appraiser is not qualified to inspect a home for code and safety violations, and I doubt they would want to. They often point out glaring deficiencies and suggest an inspection report on the item. It takes someone who knows the systems within a home and how they relate to one another to properly inspect.

This plan would accomplish three things: 1) It would preserve our Alaskan freedoms to build our own homes as we choose yet protect AHFC, as well as the homebuying public, from unsafe building practices. 2) It would put the inspection in the hands of private industry, not a large state bureaucracy. 3) It would be paid for by the industry that uses it.

If something is not done soon, when the next group of loan defaults come along, you and I will be paying, through our state dollars, to upgrade substandard housing. Lets not wait for this to happen. Lets do something now!

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INDOOR AIR QUALITY
AND
REQUIREMENTS FOR RESIDENTIAL VENTILATION

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BACKGROUND

The American Society of Heating, Refrigerating and Air-conditioning Engineers (ASHRAE) states in a 1986 Public Review Draft of Standard 62-1981R, Ventilation for Acceptable Indoor Air Quality,

"Indoor air should not contain contaminants that exceed concentrations known to impair health or cause discomfort to occupants. Such contaminants include various gases, vapors, micro-organisms, smoke, and other particulate matter. These may be present in makeup air or be introduced from indoor activities, furnishings, building materials, surface coatings, and air handling and air treatment components. Deleterious factors include toxicity, radioactivity, potential to induce infection or allergies, irritants, extreme thermal conditions and objectionable odors."

Thus we begin a semi-technical foray into issues surrounding Indoor Air Quality (IAQ) and ventilation requirements of residential dwellings. Indoor air quality problems are not implicit to new construction, however we have a greater opportunity to affect buildings not yet built, therefore much of the following discussion will focus on new construction.

The terms natural ventilation, and mechanical, or forced ventilation rate will be used throughout this article. In distinguishing the difference it is necessary to understand that the "natural" variety includes ventilation only through intentional (windows and doors) and unintentional openings (cracks and leaks to the outside). Forced, or mechanical ventilation is that amount of ventilating capacity attributable to fans, blowers, range hoods and similar mechanical devices.

EFFECTS OF IAQ

The wide variety of pollutants available to generate a residential IAQ problem is reason for concern. While we often speak of such minor pollutants as water vapor that can damage the physical building, or odors which may be uncomfortable, Volatile Organic Compounds (VOC) are usually carcinogens, exposure to radon gas can cause lung cancer and carbon monoxide (CO) exposure frequently results in death. The effects of poor

Indoor Air Quality fall into three areas: (1) comfort, (2) acute health effects, and (3) chronic health effects.

The most costly of the health effects are those that are chronic since their cause is often masked through sensitivity to other substances with the end result being a long term expense to society. Influenza, strep and similar upper respiratory illnesses rob millions of person hours from the United States work force each year, most of which are avoidable.

After the energy crisis of 1973, builders and homeowners spent a great amount of time, effort and money in building and retrofitting houses to make them more energy efficient. In doing so, and often without thinking of the ramifications of their acts, they caulked and sealed air leaks that had been costing them large amounts of money by leaking heat to the outside.

We now know that these air leaks were important because they supplied the replacement air that was necessary for comfort and health. Ventilation rates were often reduced to the point of causing IAQ complaints since the concentration of various pollutants produced indoors increased with the reduced natural ventilation rate. Mold and mildew have become problems even in our cold, dry Alaskan climate because our new buildings are constructed to be energy efficient and air-tight.

ALASKA'S EXPERIENCE

As stated during a meeting of the Canadian National Research Council in 1980:

"Although the importance of air-tightness has been stressed for the past 25 years in the technical literature dealing with the design of building enclosures, we still construct buildings that provide their owners with excisable energy costs, buildings that make the occupants uncomfortable because of drafts and infiltration of contaminated air and that suffer from problems of condensation and the deterioration of their components and materials, which require high costs for repair and maintenance. Air tightness accordingly should be the primary objective in the design and construction of walls, windows, floors, and roofs of buildings."

Though Alaska did not begin the above journey in 1980, this statement brings us to where we are presently surviving with our existing deteriorating and dilapidated housing stock. Many of our existing buildings would benefit from the application of mechanical ventilation. These buildings are those with the

severe mold and mildew problems. They are the ones where odors linger for days on end. They are also largely responsible for a good portion of the high incidence of upper respiratory illness experienced by the average Alaskan resident.

Because the winters are longer and more harsh than those of warmer climates, Alaskans spend more time indoors than do people residing at lower latitudes. In performing calculations on just how much time we Alaskans spend indoors on a life-time average, I often use the under-estimate of ninety percent. This represents all of the time we spend indoors whether it be at work, or at home. This 90% estimate encompasses the entire life experience, from cradle to grave. Were we to spend ninety percent of our lives indoors we would have to average two hours and twenty four minutes outside every day, seven days a week, from birth till death, summer and winter, rain or shine.

Few Alaskans can claim this degree of outside exposure for a life-time average. For a person forty years of age this is the equivalent to working outside for seventeen and a half years, forty hours per week. I am often surprised at our concern for the outside environment as we spend such a small amount of our lives in it. It is only recently that we have begun to focus on the micro-climate that we call "indoors".

In 1987 the Center for Disease Control (Arctic Investigations Laboratory) reported that Alaskan female Natives less than 1 year old have died 14.4 times more often from pneumonia and influenza than other U.S. residents. Alaskan, non-native females have died 1.5 times more often from lung cancer and other chronic lung diseases than other U.S. females. These are alarming statistics that we must deal with in our regulatory and policy making bodies if we wish Alaskan residents to receive full benefit of the current knowledge regarding poor Indoor Air Quality.

Alaska has little to be proud of in the way of well designed and constructed residential buildings. Alaska has no state building code and few, if any, of our local building codes reflect the true need which is for integrated designs specific to northern climate conditions. Evidence of Alaska's poor quality of housing can be seen in every city and every village. Several recent attempts to deliver housing products that could be considered advanced and appropriate for our climate have been completed without the two ingredients necessary for success. Air-tightness testing and mechanical ventilation.

EXAMPLE

The United States Army recently constructed 400 units for

families of servicemen on the Fort Wainwright Army Post, just outside of Fairbanks. The design was a sincere attempt to build to the needs of our climate with R-38 walls, R-60 ceiling insulation, triple pane windows and central heating plants. The contractor even tried to install the vapor barrier in a continuous manner and except for a few misunderstandings and missed approaches would have succeeded. Installing mechanical ventilation was felt to be unnecessary as no recognized code required it. Every building of this 40 million dollar project was inspected by the local building authority, and passed.

The real problem is that had these 400 units been assembled in an air-tight fashion, the absence of ventilation systems would have doomed them to a moldy and mildew ridden demise. With the buildings in their present configuration, the owner is now experiencing extreme difficulty keeping the gable end vents clear of frost and ice during the winter months. This is attributable to excessive upper envelope air leakage which allows moist, stale indoor air to leak into the attics and accumulate during the long heating season. The moist air condenses and wets the attic insulation, which of course greatly increases the expense of heating the structures. Unfortunately, the entire cost of heating this project is sustained by the taxpayers, you and I.

Another related concern is for high maintenance due to the frequent need for removing the frost, or the vents, each year, from now until these units are demolished. What is the true expense of this upkeep when the maintenance person falls or slips off the ladder and is injured or disabled? Loss of time from work, increased insurance costs, permanent disability and even death could be the end result.

The future holds more of the same according to the Army's designs for an upcoming housing project scheduled for construction in 1989. These next 150 units will use similar criteria as contained in the previous solicitation. Heavy wall and ceiling insulation levels, but no continuous vapor barriers and no ventilation systems.

JUSTIFICATION

Reasons for building housing air-tight are:

- a) To lower fuel bills. Improved air-vapor barriers and interior caulking reduce the risk of wet insulation from vapor condensing inside the building envelope (walls, roof, floor). With smaller individual fuel bills, residents retain more of their income to spend in local economies.
- b) Reduced maintenance costs. In leaky, poorly insulated

buildings the heating systems cycle more frequently and wear out more rapidly (pumps, fans, burners, valves, electric switch components, etc.). There are no moisture problems requiring frequent re-painting of mold or mildew stained surfaces. There is no need to remove frost and ice from attic vents, or remove the vents themselves.

- c) To conserve energy. Conscientious individuals save energy because they know it is their moral duty to make these finite resources last for future generations and for wiser, more durable uses.
- d) To improve comfort levels. Warmer, less drafty and quieter, are some of the ways that comfort is improved in air-tight construction. For seniors and infirm individuals with reduced circulatory systems the comfort level aspect is very important. Being comfortable in a climate that has a reputation for being uncomfortable, is a very big plus for all residents of Alaska.
- e) To reduce levels of air pollution. Fairbanks, Anchorage, Juneau-Douglas and other areas of Alaska have their own special conditions where outside air movement is greatly reduced during winter months. This often results in the formation of "inversion" periods where combustion by-products are able to accumulate to harmful levels in localized areas. We have recently experienced increases in airborne pollutant levels world wide. "Arctic Haze" is one example that Alaskans are familiar with, and the hole in the ozone and the greenhouse effect are others.
- f) To have total control over ventilation air and to minimize heat loss by recuperating energy from the exhaust air. Houses that provide adequate ventilation air during periods of mild weather, will always afford too much air during periods of extreme weather. This is known as uncontrolled, or out of control ventilation. The benefits are many and varied for housing that is tightly constructed, mechanically ventilated and well insulated.

REQUIREMENTS FOR MECHANICAL VENTILATION

When our indoor air becomes polluted the most popular way to clean it up is to add forced ventilation. In determining the need, type, and value of various forms of mechanical ventilation the following questions must first be answered.

- 1) What is the use of the building? Factory, office, residential etc.
(This analysis applies only to residential buildings)

- 2) What is the tightness level of the dwelling?
(The Alaska Energy Conservation Standard For New Residential Buildings requires that new houses be tighter than 4 Air Changes per Hour (ACH) @ 50 pa, when tested with depressurization equipment.)
- 3) What is the climate for the location?
(For this exercise the most mild Alaskan climate is considered. Extending from Ketchikan north to Yakutat defines that area of Alaska otherwise known as southeast. All of southeast Alaska is above the 7,000 Heating Degree Day (HDD) climate with a low at Annette/Ketchikan of 7053 HDD and a high at Homer of 10,364 HDD. Average annual wind speed is between 10.7 miles per hour (mph) at Annette, to a low of 6.5 mph at Homer. While not nearly as extreme as the interior of Alaska, southeast has a climate similar to northern maritime countries such as Denmark, Sweden and Norway.)

The answer to whether mechanical ventilation is needed for buildings meeting the above parameters is an obvious yes. Reasons for not permitting natural or uncontrolled (really out of control) ventilation is well documented and recognized throughout northern circumpolar nations. Canada, Norway, Sweden, and many southern countries all recognize the fact that buildings do not ventilate well naturally. When building houses tight to conserve heat energy the option of using mechanical ventilation becomes a necessity in order to eliminate excess odors, humidity and to provide a safe non-toxic environment and increase occupant comfort.

During a 1985 conference in Copenhagen titled "RESEARCH ON FRESH AIR CHANGE RATE DUE TO OCCUPANT EFFECTS", it was revealed that occupancy of a dwelling increases the "static" or unoccupied ventilation rate by 3-4 times. This is interesting when we consider how extremely leaky some of the older southeast and south central Alaskan housing stock is. A few of our existing structures may receive adequate natural ventilation much of the time, but most do not. Serious concern must be raised when we have buildings constructed which experience less than .3 natural air changes per hour.

The almost two million person research hours performed and documented within the International Energy Agency's, Air Infiltration and Ventilation Center, adequately answers the question of whether mechanical ventilation is necessary. This organization is made up of 22 participating nations and has already performed much of our work for us. The characteristics of air leakage in buildings is very complicated, but significant steps have been taken to define the geometry of air leakage in buildings and Alaska can ill afford to duplicate, or

ignore these research efforts. The recommendation from the Infiltration and Ventilation Center is to minimize and where possible eliminate natural ventilation completely.

However, requiring contractors to install mechanical ventilation can only be viable if the buildings are relatively air-tight. For this reason the importance of an air-tightness test cannot be ignored. If contractors are to be taken on their honor to be building air-tight construction, we can only expect a large percentage of failures for any program mandating mechanical ventilation, but not advocating at least a random spot check air-leakage test policy.

We should accept the research results of our northern neighbors which have mandatory mechanical ventilation requirements. At 4 ACH @ 50 pa, the level of tightness prescribed within the Minimum Thermal Standards, there should be little doubt that buildings in the most southern portion of Alaska should be designed and constructed with mechanical ventilation systems for reasons previously mentioned.

In fact, if we could slowly move a house from southeast Alaska to the North Slope and measure the buildings air leakage as we traveled, we would find that the natural ventilation rate would increase as the climate became colder. If any region should be considered for modification or lessening of ventilation requirements, it should be the North Slope which has a heating demand of over three times that of the Annette/Ketchikan region. It is common for warmer climates to demonstrate a greater need for mechanical ventilation due to their lower NATURAL driving forces. However, considerations of occupant comfort and the potential for heat recovery in Alaskan climates requires that mechanical ventilation always be used in place of natural ventilation.

VENTILATION STRATEGIES

Selection of the type of mechanical ventilation to use is a straightforward process of elimination. There are three basic types of mechanical ventilation strategies:

- 1) Negative pressure systems (exhaust only)
- 2) Positive pressure systems (supply only)
- 3) Balanced delivery/extract systems.

Problems associated with negative pressure systems (exhaust only) are high velocity drafts and combustion appliance back-drafting which can occur at quite small pressure differences. Another problem with using negative pressure systems is the introduction of soil gas pollutants such as radon, benzene, chlordane and moisture. Also, sewer gas entrainment may occur

when the water in a sewer line trap dries up allowing gas to flow back into the dwelling. This is a common problem in large houses with minimum occupancy where all of the available fixtures may not be utilized on a regular basis.

Positive pressure, or supply only ventilation is less common than exhaust only due to primarily one reason. Positive pressure forces moisture into the exterior building components and causes serious damage. In freezing climates the result is swift and severe. Saturated wood fiber and concrete mortar demonstrate extreme expansion when the temperatures dip below freezing. The result is saturated insulation and rapidly deteriorating structural components.

This brings us to balanced ventilation systems. The balanced, or combined exhaust/supply systems have the highest ventilation efficiency of all. Popular in most northern countries, balanced systems give good air circulation and allow for potential heat recovery. Balanced systems do not influence combustion appliances, and the moisture problems from positive pressure techniques are also absent.

HEAT RECOVERY ECONOMICS

When utilizing heat recovery, balanced systems have been found to lower ventilation related heating costs by more than 45% in Great Britain and 55% in Sweden. Other studies show heat recovery to be cost effective in climates colder than 6,000 HDD (Heating Degree Days). With Ketchikan at 7,000+ HDD it seems prudent to utilize continuously operating, balanced ventilation systems with strong recommendations for heat recovery.

The following is a simple analysis of the heat recovery potential for a 2,000 square foot house in Ketchikan, Alaska.

ASSUMPTIONS:

Volume of 2,000 sq. ft. with 8 ft. ceiling = 16,000 cubic ft.
Annual Temperature Difference = 23.4° F, $T_i - T_o$
Average Year = 8,760 hours
Specific Heat Capacity of Air = .018 Btu/FT³ * °F
One Gallon of Oil = 103,500 Btu, Burned 75% Efficient

USING:

$$Q = \frac{V * (T_i - T_o) * Cp * T}{103,500}$$

WHERE:

Q = Gallons Of Fuel Oil Used To Heat One Air Change per Hour
(ACH) Over A One Year Period
V = Volume Of The Interior Conditioned Space
Ti = Temperature inside = 70° F
To = Temperature outside = 46.6° F
Cp = Specific Heat Capacity of Dry Air 0.018 BTU/FT³ * °F
T = Time In Hours Analysis Is Considered (365 X 24 = 8,760)
103,500 = Btu In One Gallon Of No. 2 Oil, At 75% Efficient

FINDING:

$16,000 * (70-46.6) * .018 * 8,760 / 103,500 = \underline{570.39 \text{ gallons oil}}$

To calculate .5 natural air changes per hour (ASHRAE recommendation) we divide 570.39 by 2 and find the ventilation expense equivalent to 285.2 gallons annually. With heat recovery at 60% efficient, the energy saved is equal to 171.12 gallons annually.

Assuming a steady state economic analysis for a ten year period we find a simple payback of \$1,711.20 with oil averaging \$1.00 per gallon. This is quite adequate to justify heat recovery in Alaska's warmest climate. Should our energy costs increase beyond an average of one dollar per gallon over the next ten years, heat recovery ventilation will prove to be a prudent investment especially when the many associated health and comfort benefits are included.

CONCLUSION

At a minimum, balanced ventilation is necessary for new houses which meet or exceed the Thermal Standard air tightness requirement. Justification exists for heat recovery in the most mild Alaskan climate, though this option could reside with the designer/builder to provide maximum program flexibility.

Today we have more options and therefore more decisions to make regarding the methods, materials and design of housing that should last for the next 80 to 100 years, instead of the 40 to 60 years estimated for typical construction. Design requires a much more important role in the modern energy efficient structure as we must minimize our chance for errors by eliminating all known causative effects relating to previous building failures.

We must quit viewing buildings as stagnant entities and see them as the continuously changing structures that they are, moving and breathing throughout the seasons. Only then can we

learn to view the house as a compilation of dynamic systems where the interaction formed by one system with another will determine each systems viability.

Whether the impetus for change is in the form of the voluntary Alaska Craftsman Home Program, or the mandatory Alaskan Thermal Standards, the physics of building and living in Alaska will demand that these issues be addressed. In the interest of resident health, safety, comfort and economics, Alaska should join with our northern neighbors and develop a comprehensive thermal, ventilation, and air-tightness standard for all new residential buildings.

Phil Loudon, is a thirty year resident of Fairbanks with experience in diagnosing building and indoor air quality problems. He has been a member of the Alaska Craftsman Home Program's Review and Technical Committees since 1986 and instructs ACHP building workshops in the North Slope Borough.

August 25, 1988
PGL/slf

"RADON IN ALASKA HOUSING"

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For approximately two years now radon has been an increasing concern in Alaska. Much is unknown about this threat in our housing and in order to more clearly state the situation I would like to present this paper to the Housing Council with an overview of what we do know about it and what I think we should do about it for the Alaskan case.

First, what is Radon? Radon is a naturally occurring radioactive gas that comes from the natural radioactive decay of uranium in the soil. It can be found in high concentrations in soils and rocks which contain uranium: granite, shale, phosphate, or in the case of the Fairbanks problem, metamorphic Birch Creek schist. Radon may also be found in other soils contaminated with industrial wastes or phosphate mining. In outdoor air, Radon is diluted to such low concentrations that there is usually nothing to worry about. However, once it is in an enclosed space such as a home, it can accumulate. The indoor levels depend on the construction of a building, whether it has soil contact, (Does it have a basement?), and the concentration strength of the radon in the underlying soil.

Radon is a problem only because it is a noble gas. Because it is a gas it can be mobilized and transported in air. The problem detected in Fairbanks, and other locations in Alaska to a lesser degree, is due in part to our long heating season our soil conditions, and our type of housing construction. We have in Alaska a case in the extreme for radon concentration in homes. This is a concern because the known health effect associated with exposure to radon is an increased risk of developing lung cancer. Not everyone exposed to elevated levels of radon will develop lung cancer, but scientists estimate that from about 5,000 to about 20,000 lung cancer deaths a year in the United States may be attributable to radon. The American Cancer Society expects that 130,000 people died of lung cancer in 1987.

The risk of exposure to radon has also been reviewed recently by the National Academy of Science. The results were published in a major report and also in Science magazine, January 1988. The estimate of risk associated with radon was actually increased as a result of a thorough re-examination of the data that exists. Most of that data, by the way, comes from the experience of uranium miners in the 1940's and 50's.

These people were exposed to known levels of radon gas in underground uranium mines. They were monitored throughout their lives for their health, whether or not they smoked, what they got sick from, and particularly how they died. The risk associated with these known exposures to the radon levels is

very relevant to the case of radon exposure in homes, although in some cases the exposure levels must be extrapolated to include the range in homes.

The situation is of deep concern in Alaska because of the rate at which we have found high levels of interior radon, as opposed to what is considered to be, "an acceptable level". The EPA sets the remedial action level for radon at 4 pico-curies per liter (4 pCi/l). Although there is some risk contracting lung cancer at this level, it is often difficult to lower this concentration in any economically feasible way. In looking at the Fairbanks test population as a case study and as an indicator of the radon problem in Alaska, we find some very significant concerns. There are two major sets of data resulting from two different types of radon tests in homes available to us in Alaska. One of them has been assembled by The State Office of Radiological Health in the Department of Health and Social Services. Mr. Sid Heidersdorf is the State Radiological Physicist, who is mandated to keep an eye on radiation hazards to the population. This mandate includes keeping tabs on the radon problems. That survey has been ongoing for about two years in Alaska. The state survey employs a three month etch-track type radon detector which measures the alpha particle decay of radon in the home. In this study, data from all over the state has been included. The latest data from the Health and Social Services Department are shown in figure 1. You will note that Fairbanks is by far the problem area in the state. In fact more tests have been done in the Fairbanks area than anywhere else. A second data set (figure 2) is also from a statewide survey, but the results are posted only in terms of zip codes because this data set is accumulated by a private company from individuals who buy test kits. The information remains confidential but the locations are known. The data shown in figure 2, is data from "Air Chek", a company that sells a passive carbon-type test kit. Their data is extremely revealing and is the basis for concern. The data shown that the highest level found in Wasilla, for instance, was 196 pCi/l, and in Talkeetna a test indicated 183 pCi/l. Both were above the highest level ever detected in a ten state study by the EPA in the lower 48. Fairbanks is the site of the very highest rate with 989 pCi/l in one instance. Many others are in the range of 100 to 600. These ranges are 50 to 100 times the acceptable EPA remedial action level. Other communities with radon levels measuring above 4 pCi/l are Anchorage, Dillingham, Gakona, Homer, Ninilchik, Palmer, Valdez, Clear, North Pole, Ester, Delta Junction, Healy, McKinley Park, and the Border Station near Tok.

Some caution needs to be exercised in making a case with this data because it is insufficient to provide an accurate statistical analysis. However, because so many elevated levels have been detected with such limited testing, it serves notice to members of the community, especially it should serve notice to the real estate community that this is an issue of considerable concern. In fact, figure 2 shows that 52 percent of the tests (totalling 353) were at or above the remedial action level as set by the EPA. More than 20 percent of the tests or 1 in 5 were above 20 pCi/l which is 5 times the EPA recommended remedial action level. Obviously, Fairbanks appears to be a case worthy of further research to determine how bad the problem is and what in fact we can do about it.

(Figure 1.)

	Location	Number	Concentration of radon, picocuries per liter of air (pCi/l)			
			4 or less	5-8	9-20	20 +
1	Anchorage	92	90	1	1	
2	Anchor Point	1	1			
3	Anderson	1	1			
4	Arctic Circle H.S.	7	4	3		
5	Barrow	1	1			
6	Bethel	1	1			
7	Bettles	1	1			
8	Copper Center	1	1			
9	Craig	1	1			
10	Deadhorse	1	1			
11	Delta Junction	4	3	1		
12	Dillingham	1	1			
13	Douglas	3	3			
14	Eagle	1	1			
15	Eagle River	15	15			
16	Fairbanks	115	85	9	9	12
17	Fort Yukon	1	1			
18	Gakona	1	1			
19	Galena	1	1			
20	Glenallen	2	2			
21	Haines	5	5			
22	Healy	7	5	1	1	
23	Homer	4	3		1	
24	Hope	1	1			
25	Juneau	30	29	1		
26	Kasilof	1	1			
27	Kenai	1	1			
28	Ketchikan	4	4			
29	King Salmon	1	1			
30	Klawock	1	1			
31	Kodiak	13	12	1		
32	Kotzebue	2	2			
33	Manley Hot Springs	3	2		1	
34	McGrath	1	1			
35	McKinley Park	48	33	7	7	1
36	Moose Pass	1	1			
37	Nenana	1	1			
38	Nome	1	1			
39	North Pole	4	4			
40	Northway	3	2		1	
41	Palmer	7	6		1	
42	Pedro Bay	1	1			
43	St. Mary's	1	1			
44	Seward	1		1		
45	Sitka	2	2			
46	Skagway	1	1			
47	Soldotna	4	4			
48	Sterling	1	1			
49	Tanacross	1	1			
50	Tok	3	2		1	
51	Unakleet	1	1			
52	Valdez	2	2			
53	Wales	1	1			
54	Wasilla	6	6			
	TOTALS	415	354	25	23	13
		=====	=====	=====	=====	=====

Zip Codes	No. At Each Zip Code	No. Of Occurrences Under 4 pCi/l	Percent of Occurrences 4 pCi/l	# In Range 4-10 pCi/l	Percent 4-10 pCi/l	# In Range 10-20 pCi/l	Percent 10-20 pCi/l	# In Range 10-50 pCi/l	Percent 20-50 pCi/l	# In Range 50-100 pCi/l	Percent 50-100 pCi/l	# In Range Over 100 pCi/l	Percent Over 100 pCi/l	Highest Level Each Location
99501	2	2	100%	0	0%	0	0%	0	0%	0	0%	0	0%	.0
99504	2	2	100%	0	0%	0	0%	0	0%	0	0%	0	0%	.6
99506	1	0	0%	1	100%	0	0%	0	0%	0	0%	0	0%	2.5
99507	1	1	100%	0	0%	0	0%	0	0%	0	0%	0	0%	1.8
99508	6	6	100%	0	0%	0	0%	0	0%	0	0%	0	0%	1.8
99511	3	3	100%	0	0%	0	0%	0	0%	0	0%	0	0%	.6
99515	1	1	100%	0	0%	0	0%	0	0%	0	0%	0	0%	.8
99516	1	1	100%	0	0%	0	0%	0	0%	0	0%	0	0%	.4
99519	1	1	100%	0	0%	0	0%	0	0%	0	0%	0	0%	8.9
99576	2	0	0%	2	100%	0	0%	0	0%	0	0%	0	0%	2.2
99577	5	5	100%	0	0%	0	0%	0	0%	0	0%	0	0%	7.1
99586	3	2	66.7%	1	33.3%	0	0%	0	0%	0	0%	0	0%	1.3
99588	3	3	100%	0	0%	0	0%	0	0%	0	0%	0	0%	4.1
99603	2	1	50%	1	50%	0	0%	0	0%	0	0%	0	0%	.8
99615	3	3	100%	0	0%	0	0%	0	0%	0	0%	0	0%	6.1
99639	1	0	0%	1	100%	0	0%	0	0%	0	0%	0	0%	4.9
99645	6	4	66.7%	2	33.3%	0	0%	0	0%	0	0%	0	0%	1.3
99676	3	0	0%	1	33.3%	1	33.3%	0	0%	0	0%	1	33.3%	5.7
99686	3	1	33.3%	2	66.7%	0	0%	0	0%	0	0%	0	0%	1.6
99687	18	4	22.2%	5	27.8%	5	27.8%	3	16.7%	0	0%	1	5.6%	16.8
99701	25	16	64%	4	16%	5	20%	0	0%	0	0%	0	0%	1.5
99702	1	1	100%	0	0%	0	0%	0	0%	0	0%	0	0%	7
99704	1	0	0%	1	100%	0	0%	0	0%	0	0%	0	0%	35.5
99705	7	6	85.7%	0	0%	0	0%	1	14.3%	0	0%	0	0%	548
99706	7	2	28.6%	2	28.6%	0	0%	0	0%	0	0%	3	42.9%	145
99707	31	14	45.2%	8	25.8%	2	6.5%	4	12.9%	0	0%	3	9.7%	989
99708	56	21	37.5%	8	14.3%	5	8.9%	8	14.3%	10	0%	4	7.1%	532
99709	70	37	52.9%	15	21.4%	1	1.4%	4	5.7%	5	0%	8	11.4%	15
99710	5	3	60%	1	20%	1	20%	0	0%	0	0%	0	0%	432
99712	56	17	30.4%	14	25%	10	17.9%	6	10.7%	7	0%	2	3.6%	3.5
99714	1	1	100%	0	0%	0	0%	0	0%	0	0%	0	0%	105
99725	9	2	22.2%	1	11.1%	2	22.2%	1	11.1%	2	0%	1	11.1%	8.5
99737	5	3	60%	2	40%	0	0%	0	0%	0	0%	0	0%	9.5
99743	1	0	0%	1	100%	0	0%	0	0%	0	0%	0	0%	9.4
99755	3	2	66.7%	1	33.3%	0	0%	0	0%	0	0%	0	0%	.8
99775	2	2	100%	0	0%	0	0%	0	0%	0	0%	0	0%	5.5
99780	2	0	0%	2	100%	0	0%	0	0%	0	0%	0	0%	.9
99801	1	1	100%	0	0%	0	0%	0	0%	0	0%	0	0%	1.5
99827	1	1	100%	0	0%	0	0%	0	0%	0	0%	0	0%	.7
99835	1	1	100%	0	0%	0	0%	0	0%	0	0%	0	0%	
ANSWERS UNDER FOUR					= 170 OR 48.5%									
ANSWERS FOUR TO TEN					= 76 OR 21.5%									
ANSWERS TEN TO TWENTY					= 32 OR 9.1%									
ANSWERS TWENTY TO FIFTY					= 27 OR 7.6%									
ANSWERS FIFTY TO HUNDRED					= 24 OR 6.8%									
ANSWERS OVER HUNDRED					= 23 OR 6.5%									
TOTAL NUMBER OF ANSWERS					= 353									

FIGURE 2. (COURTESY OF NORTECH AND AIR-CHEK, INC.)

These data show the results of 353 passive radon detectors exposed in locations in Alaska. The first column is the zip code of the location in Alaska. Other columns are labelled with the range of radon levels measured, and followed by the percentage of the total number of measurements in each range. The last column lists the highest level measured at each location.

Perhaps this is a good time to note radon's "Good - News" side. Radon is a solvable problem. The Cooperative Extension Service has available a set of publications with very detailed and successfully applied instructions on how to mitigate against radon in a basement. It may not always be cheap. In fact, in a particular case which I can cite from personal experience, mitigating radon levels in the range of 50 to 100 pCi/l, and getting down to a level of .7 pCi/l over a period of about fourteen months, resulted in a cost of about \$4,500 dollars. This total includes the tests that were done to see what the results of the mitigation steps were. This is an intimidating prospect for someone who may want to sell a house and finds radon or who has a house that has radon problems and needs to mitigate. For this reason I suggest that a state program to loan money for the purpose of radon mitigation would be in order. If it were at or above market rate, having the money available would be a major public service for which I foresee an increasing need.

Such a bill to provide radon mitigation funds was presented in the last legislature by Representative Mike Davis of Fairbanks. However, it was not successfully passed although \$83,000 dollars was attached to another bill to provide radon mitigation. Such mitigation could only be applied now with regard to other energy efficient retrofits of buildings. The Alaska Craftsman Home Program includes instructions on radon proofing new construction and a detailed appendix on how to mitigate against radon problems in construction. All of this is a result of what we have learned in the past two years about the Alaskan radon problem. These publications are all available from the Cooperative Extension Service of the University of Alaska in Fairbanks.

It should be noted also that one of the banks in Fairbanks, Key Bank, has instituted a loan program at 1/2 percent below market rate for radon mitigation. A bank vice-president invited myself, and Mr. Phil Loudon, a Building Consultant in Fairbanks, to give a presentation on radon in anticipation of this loan program earlier in 1988.

Because the radon problem in Fairbanks is widespread, we have learned a great deal about how to approach the problem from the experience there. There seem to be high risk areas in certain subdivisions and in certain geological locations in the area. For instance, a home located high on the breast of a hill, with soil depths of 8 feet or less, is a suspect home. Here's why: The hypothesis for how radon moves in the soil is based on a permeable layer above bedrock which allows the radon, and air carrying the radon, to move through it to cracks, fissures, or imperfections in basements, and into the living spaces of a house. Studies in the lower 48 have shown that radon rarely moves more than 60 meters laterally in the soil, so that most of the radon entering a home would have to come from a bulb below the house. Forces that drive radon and the air from the soil into the house are often generated by heating the house.

Not only is the long heating season in Fairbanks a factor in radon transport, but throughout the heating season you are operating a system which tends to move radon into the house and concentrate it. The heating system in a house tends to act as a pump sucking radon laden air in the bottom of the house, and driving exhaust out the top.

All of these factors relate to an understanding of the problem in a specific geological setting. This does not mean that radon can not be present in areas which are less suspect, such as flood plains, highly porous gravel in valleys or deep silts. Certainly we have found less of a problem at these sites, but there are always spurious and inexplicably high levels in various places where one would not expect them. One such area is the Aurora Subdivision in Fairbanks, which is right along the Noyes Slough. Another is Lakloey Hill on Badger Road in the North Pole Area. The Lakloey Hill situation is a model of the larger hills to the north of Fairbanks, so it is more explicable than the case for Aurora Subdivision. The lesson here is clear. No one should presume that because of where they live and because their neighbors do not have a radon problem, that they do not have a radon problem. The only way to be sure is to test.

A radon problem case study from Pennsylvania is worthy of note. The State of Pennsylvania is where the radon issue became well known first. It is now a legal requirement in any transaction in Pennsylvania conducted by a real estate agent, that a radon disclosure form must be signed as part of the transaction. This means that the seller must disclose whether or not he has tested for radon and if he has tested, what the radon level was in the house. Or he must say that he has not tested and does not know. In that case the prospective buyer has the right to request the test and to know what the radon level is. This is apparently working quite well, but it is yet another element of complication in the sale process.

There is no immediate necessity for this type of option in the Alaska situation. However, because of the ethical requirements of the real estate profession, it is necessary that people who may be at risk from radon be informed as such by the real estate agent. In several instances in the Fairbanks area a buyer required a radon test as part of his contract for the sale. In some cases the house did not sell because it had high radon levels. So this is not an insignificant issue, and it will continue to become a larger issue as more awareness of this problem develops.

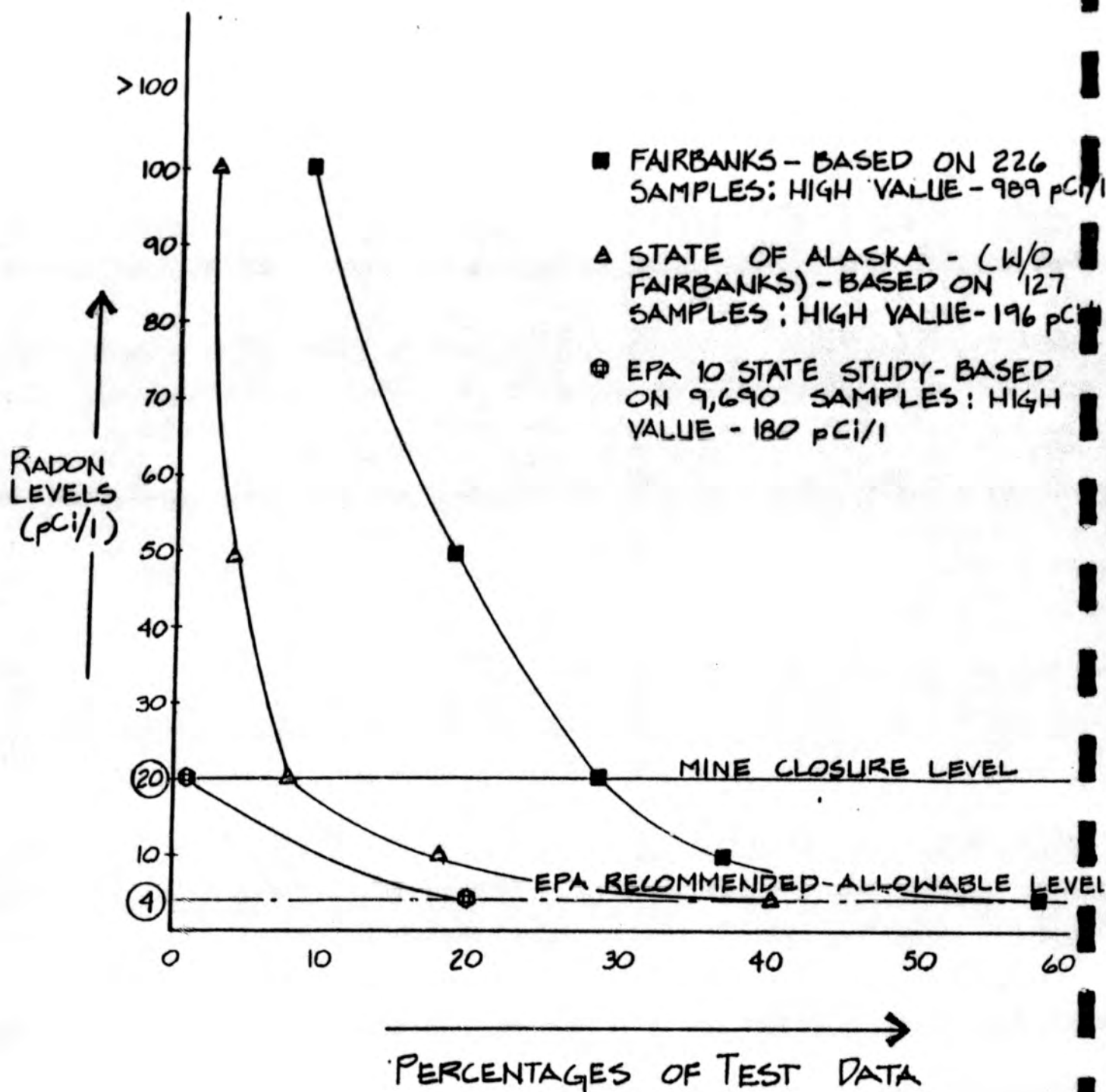
In summary, radon is an issue that the housing industry needs to become familiar with. The important matters to understand are how radon moves, and why it is a problem only in certain types of houses, i.e., those houses which have soil contact. Perhaps most important is the optimism that radon is a solvable problem even though it may require a capital investment of as much as a few thousand dollars to mitigate. There is no reason why anybody should hesitate to buy a home that has been mitigated against radon, because a very inexpensive (\$15 to \$30) test can be performed at any regular interval (one to three months, or one to three years) to assure the occupants that the radon levels continue to be acceptable for family living.

Another consolation is that the level of scientific expertise and technical capability to mitigate radon is very high in Alaska. This is the result of the first case studies and the fact that the state Division of Geological and Geophysical Surveys has equipment that it uses publicly to monitor and test areas of concern. The private sector has also responded very positively to the challenge of radon mitigation with a very high level of technical competence and expertise in dealing with this problem.

Each problem needs to be understood and evaluated as a unique circumstance, but there are certain physical processes in radon transport which are well understood and can be relied on in the mitigation scheme. So the process is learnable and the problem is manageable. Further research and education about awareness of the radon problem should be encouraged by the building community and within the building community. This is a technical problem which nature has provided for us, and whether you are subject to its effects or not is really a matter of chance. It is an economic reality in the system today because it can influence the purchase of homes and the sale of homes, but it is also a solvable problem and should be regarded as such.

Any information that we either develop, or receive from elsewhere about radon and its mitigation, the Cooperative Extension Service makes available to the public, free-of-charge, through our offices in Fairbanks and around the state. We welcome any opportunity to present radon seminars for educational purposes to the building community as well as to the banking and finance communities.

July 20, 1988



**ZONES, CODES, AND AFFORDABLE HOUSING:
EVALUATING THE IMPACT OF LOCAL
LAND DEVELOPMENT REGULATIONS**

by

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September, 1988

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INTRODUCTION

The relationship between local regulation and the cost of housing has been established for some time. According to a 1982 report of the President's Commission on Housing, regulations affecting land use, building codes and standards, development requirements, and permit processing account for 25% of the final sales cost of an average home.¹ In 1979, the U.S. Department of Housing and Urban Development sponsored a national conference on housing costs, which focused on methods of reducing costs at the local level by improving development standards, increasing the supply of developable land, providing for equitable distribution of public facilities costs, and improving permitting procedures. More recently, a 1985 National Association of Homebuilders conference on Low and Moderate Income Housing explored regulatory barriers to development of affordable housing.²

The legitimacy of local regulatory processes governing land development is not at issue. Local governments, through extension of the police power, exercise control over local land use and development to promote the general welfare and to protect the public from unnecessary hazards and nuisances. What is at issue is the way in which local governments exercise that authority, characterized by "(r)estrictive growth policies and excessive development standards (which) make it difficult to find reasonably priced land for development. Inefficient procedures and unduly elaborate regulations complicate public approvals for development proposals. Vague requirements and lengthy approval processes encumber the timely provision of public facilities".³

This paper focuses not on a prescriptive approach to solving already identified problems with local development regulation, but rather seeks to outline some of the most common problems experienced nationwide, to provide Alaskan communities with a framework within which to evaluate their own local development codes and regulations, and to assess their impact on the supply of affordable housing in Alaska.

Regulatory impacts can be grouped into three general categories: 1) Front-end costs, 2) Land and property taxation, and 3) Building, zoning and other governmental regulation.

FRONT-END COSTS

One of the primary factors contributing to escalating housing costs is the set of expenses commonly referred to as "front-end" costs. These include:

- * Plant investment fees such as sewer, water, electricity, storm drainage, and street oversizing

- * Land-related costs, such as land dedication for schools, parks, and other public facilities, as well as utility infrastructure requirements
- * Planning-related costs, such as the carrying costs incurred during the development approval process, land use policies, and setback requirements
- * Utility-related costs, including time delays, non-interest bearing deposits, and labor costs

According to the National Association of Homebuilders, these types of costs and fees have increased the price of a single-family home nearly 13 percent from 1949 to 1982 ⁴

Plant Investment Fees. Abuse of plant investment fees has been practiced by many communities in the Lower 48 in an attempt to discourage new growth, recoup overhead and administrative expenses not necessarily related to land development, and to preserve neighborhood or community "exclusivity" by specifically retarding the development of affordable housing.

Legitimate use of plant investment fees is possible, however, when governed by the following guidelines:

- * Fees should not be used as a growth management tool or mechanism to inhibit development
- * Development should be charged with only those costs directly related to the activity, not "overhead" costs
- * Fees should recognize and take into account special design features of the project (ie energy or water conserving) in establishing the fees charged
- * Local officials and staff who establish fees and fee structures, should be required to provide explicit documentation and justification of the basis of the fees

In addition, local governments should explore innovative ways to finance urban infrastructure that will reduce front-end loading costs. Conventional interest rates are typically twice as expensive as bonded rates. If, for example, special improvement district bond financing were employed, the lessened inflationary pressures would benefit the entire community.

Land-Related Costs. The practice of requiring developer dedication of land for schools, parks and other public facilities (often referred to as "impact fees") is frequently cited as a front-end cost that is easily abused. Impact fees are fees levied against the project to pay for required capital improvements.

As an example, schools traditionally have been financed by property taxes on a community- or district-wide basis. Under an impact fee structure, the new development which will benefit from the schools must bear the cost of providing the facilities, either through land dedication, or cash fees. Whether "set-aside" of land for schools is a cost that should be borne by the developer or by the school district is subject to debate.

Use of impact fees has spread to the financing of low-cost housing, day-care facilities, and other community interests. The sense of current case law indicates that communities will be required to prove a "rational nexus" in order to exact impact fees, that is, the fees or dedications must bear a direct relationship to the impact the proposed development will exert on the community infrastructure. Under this argument, impact fees charged to a housing developer to pay for street improvements providing access to the subdivision might be permissible, while fees to build low-cost housing in another part of the community probably would not.

The creation of artificial growth area boundaries has had a dramatic impact on land prices in communities in the Lower 48 where this practice exists. Cities have created these boundaries to enable infrastructure planners to predict what land will develop and what will be left fallow. The effect of such practices can be skyrocketing land prices within the boundary, directly translating into higher overall housing costs, at all levels. Development of a growth boundary policy needs to be carefully coordinated with taxation policies to avoid such adverse impacts.

Planning-Related Costs. Unnecessary delays in processing of approvals and permits add to the final cost of housing by increasing the carrying costs of the project. Delays of over 6 months are not uncommon, industry-wide.

Communities should examine the length of time required to approve a plan, once a complete package is submitted by the developer, and place limits on the process to assure prompt performance by the local government. Failure by the local government to act in accordance with its own policies could result in assessment of damage costs against the city. On the other side, developers should be allowed to post bond that they will meet all permitting requirements, allowing construction to commence without waiting for final approvals. Such a policy would enable developers to take optimal advantage of the short Alaskan construction season.

Utility-Related Costs. One of the major tasks of cities and developers in developing new housing is providing utility infrastructure to the project. It overlaps with the Plant Investment fee issue, in that cities should not abuse these fees and should seek alternative methods of financing these capital

improvements, which may develop additional service capacity and therefore benefit the community as a whole.

Another related issue concerns the deposits charged to developers by utility companies. This money, which must be deposited on the front end of the project, should be placed in escrow with interest accruing to the developer, not to the utility. Utilities should be required to start work by a certain agreed-upon date, or the developer should be able to hire other certified and available subcontractors to perform the work of the utility company.

Summary. High housing costs hurt everyone; no one really profits from them. Yet some communities may unknowingly allow practices and policies that directly increase housing costs. Each of the above categories should be carefully studied in the context of the local community setting, and action taken to reduce government-imposed front-end costs whenever possible.

LAND AND PROPERTY TAXATION

It has been convincingly argued that the property tax is one of the principal reasons why land speculation is rampant in growth communities. Good evidence suggests that proper adjustments to this tax can help suppress speculation, loosening its grip on tightly-held idle lands that now push development outward. Real estate taxes in most U.S. communities favor speculative land holders over developers or land users. Property taxes on vacant land are kept low, and then skyrocket when development takes place. Communities seek to improve the quality of inner-city housing, but continually raise property taxes when improvements are made.

The property tax is really two taxes combined as one. First, the property tax is a tax on land. Second, it is a levy on the improvements made to the land, such as homes, stores, and office buildings. Generally, the land tax tends to be very low; the improvement tax too high. The higher the tax on improvements, the greater the disincentive to maintain buildings or to construct new ones. In effect, deteriorated buildings receive greater tax advantages than well-maintained neighbors.

The land tax, on the other hand, tends to stimulate more appropriate investment on land as the tax increases. Since the tax does not alter the productivity of the site or the quantity of land available, the owner usually cannot shift the land tax to tenants or customers. If the land tax is too low, owners have little pressure to make the best possible use of their sites.

Property tax can be characterized as both the best and worst of taxes. The tax on land values is equitable, but the tax on improvements is ammunition for killing the goose that lays the

golden eggs. Many communities have the worst of both -- relatively low land taxes, combined with high improvement taxes.

To achieve optimum social results from the property tax, while retaining its revenue-generating function, communities should consider these options: 1) putting assessments in order; 2) providing temporary abatements to encourage rehabilitation or new construction in targeted areas; 3) taxing buildings less and land more, and 4) adopting tax base sharing. Communities should also consider enlisting the aid of taxation experts to evaluate their individual land taxation policies.⁵

BUILDING AND ZONING CODES, AND OTHER GOVERNMENTAL REGULATION

Building Codes. Many communities, in an effort to modernize their local codes, have adopted model building codes. These codes often create problems both for developers and for the communities that administer them.

Often, model codes are adopted without close scrutiny to determine whether the requirements they impose are really appropriate to the community. For example, one model ordinance dictates cul-de-sac length, minimum set backs, maximum fire hose length and other fire protection and planning requirements. Other model codes deal with specific unit size requirements and such details as triple-glazed windows and distance between joist and studs. Communities should bear in mind that a model code is just that, a code designed for a model city. In Alaska, where communities face unique topographic and climatic challenges, model codes should be subjected to careful review, and adapted to the needs of the community before adoption by the local governing body.

Administering model codes can also be burdensome for small units of local government, who may lack sufficient staff trained in all aspects of specialized code enforcement policies. The burden may exhibit itself in increased staff training costs, inefficient and costly delays in permitting and approvals, and housing that does not "work" in the Alaskan climate and topography. In addition, model codes often use specific, rather than performance-oriented standards, and fail to allow builders to employ innovative techniques and materials which may reduce building and/or operating costs of the project.

Zoning and Density Standards. A number of zoning trends nationwide has made it difficult for many communities to develop an adequate mix of affordable single family, townhouse, and moderate to high density residential uses, particularly near urban centers. Single family zoning, coupled with large minimum lot sizes, extensive setback requirements, and minimum unit sizes or values not only precludes multi-family development, but prices single family housing beyond the reach of prospective entry-level homebuyers. Large-lot zoning, combined with

excessive development constraints, usually results in an "exclusionary" effect by excluding development of higher-density, lower-cost housing.

One response to this dilemma has been the development of so-called "inclusionary zoning" policies. Inclusionary zoning ordinances either require or encourage developers to provide housing units to lower income households at prices below market levels, in exchange for certain financing or density incentives. Inclusionary zoning is highly controversial, and its long-term effectiveness has not been evaluated.⁶

Arguments against inclusionary zoning as a tool to facilitate development of affordable housing include: Is inclusionary zoning an unconstitutional "taking" without compensation?; If density bonuses are used as incentives with no harm, then why aren't higher densities the rule, rather than the exception?; and Is it equitable for higher-income households to, in effect, subsidize housing for lower-income households?

Alaska is currently experiencing a disequilibrium of the housing market, where supply outstrips demand. Ideally, this should create a "buyers market" for housing, where all households have a wide choice of housing types and tenures, whether single family, condominium, rental or ownership. In fact, however, the supply of standard housing affordable to poorer families continues to fall short of the need. As the economy has continued to decline, more and more households are falling into the lower-income category, and many are forced to occupy substandard or shared housing. Meanwhile, due to a general tightening of lending requirements, some middle-income households find it difficult to obtain financing to purchase existing vacant homes, despite steady employment in stable sectors of the economy.

The current condition of the Alaska housing market does not render the state immune from the issues of exclusionary zoning. Communities can anticipate future housing needs and replacement of substandard housing now by evaluating their existing zoning ordinances with a eye toward their effect in restricting or encouraging development of affordable housing.

Project Design Standards. At issue here is the retardation of development of affordable housing by imposition of development standards and procedures beyond that which is necessary for the minimum protection of health, safety and welfare. While minimum building size, pavement widths, off-street parking, landscaping and sidewalks may appear desirable, their net effect is to exclude all but higher-income households from entry into the community.

Local governments can take a progressive step toward lowering the cost of housing by reviewing their subdivision and building regulations, seeking changes that would permit and encourage

more compact, cost effective development. Some ways to accomplish this effect are:

- * Allow increased densities in sufficient amounts to meet present and future demand
- * Reduce requirements for lot and yard size, setbacks and street widths
- * Replace traditional quantitative standards for facility sizes with performance standards
- * Establish minimum density requirements for developing areas, as appropriate to local conditions, to promote efficient use and infill of vacant land
- * Employ performance standards on housing and building codes
- * Remove restrictions and prohibitions against manufactured and prefabricated housing and adopt in their place standards which can be applied to all housing in conformance with principles of effective planning and design

Environmental Regulations. In recent years, increased public attention and governmental regulation has been focused on the impact of development upon Alaska's fragile arctic landscape. However, local governments need to assess their local environmental regulations to ensure that unnecessary or duplicative reviews and approvals are eliminated, and that these regulations serve no purposes other than environmental protection.

In addition, local governments should examine applicable state regulations to determine the impact of these regulations on the development of affordable housing in their communities, and advocate through the legislative process for changes where necessary.

SUMMARY

Because of the temporary decline in the housing market, Alaskan communities have a unique opportunity right now to evaluate their local development regulations to assess their impact on the development of affordable housing, and to promulgate effective regulation that will result in a supply of housing to meet the present and future needs of Alaskan families.

We have briefly examined regulatory impacts, grouped into three general categories: 1) Front-end costs, 2) Land and property taxation, and 3) Building, zoning and other governmental regulation. Communities are encouraged to examine their local codes, ordinances and development regulations to determine if they are congruent with local housing needs and special topographic and climatic challenges and to make creative adaptations and modifications to ensure that regulations that are intended to serve the public welfare do not have the opposite effect of imposing barriers to the development of the wide range of housing opportunities necessary to achieve and sustain economic health and stability.

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HOMELESSNESS IN ANCHORAGE
"The Fine Gray Line"
August 1988

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I. INTRODUCTION

During my 21 months as a full-time homeless activist in Anchorage, I encountered a great obstacle in my efforts to polarize the homeless issues. The sociologist's dilemma: working within the fine gray line between opposing points of view was ever present and made more difficult by a tendency in most people to not speak out honestly when the homeless issues became sensitive. The homeless did not often speak to me of their anger and rage as outcasts of society and the people working to help them rarely spoke to me of their fear, distaste and frustration as they tried to assist a group of people, many of whom, were plagued with chemical addictions, mental illness and poor hygiene.

I no longer work one-on-one with the Anchorage homeless and it will be months before I can put together six month's of research on homelessness in the United States and 21 months of community activism into a clear pattern of analysis; nevertheless I feel this writing can offer a few brief but important facts regarding the homeless population in Anchorage that will be of interest and hopefully of some value to the Alaska Housing Market Council.

This presentation is an attempt to bring the reader a glimpse beneath the surface of homelessness: a look at the "nitty-gritty" problems and an opportunity to consider a few of the grass-roots solutions to the problems of homelessness in Anchorage as I found them to be. The reader however, must keep in mind that I worked alone. Although I did receive college credit for my work, I was not salaried; therefore my perspective of what it is like to be homeless in Anchorage may be biased from my living in poverty with these people, or it may be positively biased since I did not form my opinions from a "distance."

II THE PROBLEM

However much it may be true that the single most tragic cause of homelessness in America today is this nation's failure to "provide a decent home and suitable living environment for every family in the United States" as the 1949 federal housing policy demanded; it is also true that efforts to help the poor get bogged down in bureaucratic red-tape and fears that low-income projects will turn into slums if the behavior of a great many of the "street people" does not improve.

According to a January 22 article entitled: "1987 Shows Housing Problems Reflect Other Anchorage Troubles" written by Connie Yoshimura for the Anchorage Daily News, there are "14,000 vacant residential properties" in Anchorage. Comparing the availability of housing in Anchorage to the

Municipality of Anchorage's estimate of 4,000 homeless people in our community (see Comprehensive Homeless Assistance Plan) it would seem on the surface at least, that Anchorage has a rare opportunity to come up with some long-term solutions to homelessness and in my opinion this opportunity should not be ignored.

Anchorage though, has few places if any, to look for guidance for orchestrating a long-term approach. As Washington Post staff writer Jay Mathews put it, (see Homeless: First You Have to Count Them, Sept. 9, 1985): homelessness has become a metaphor for the "clash" that has occurred since 1981 between the Great Society and the Reagan revolution. And yet the "instinct" of government even under a President "distrustful of social engineering" acted; but today, the effort appears mired in "confusion over what forces have caused homelessness" and whether any of them are within the government's power.

Other city governments then like ours and the federal government, face the same obstacle: homelessness is not a singular problem that can be solved simply by counting heads and constructing affordable housing or making affordable housing available. Homelessness is as complex an issue as are the complex needs of today's population of two-million women, children and men themselves.

On a nation-wide level the problem of homelessness in America, taken as a whole, seems a near-impossible challenge. From the perspective of solving the problem on a community-by-community level however, I have found homelessness to be a less formidable task to solve. What is difficult and perhaps not solvable, is the task of putting aside questions regarding those forces or causes that put people out onto the streets in the first place.

It is my assertion however, that we should put these questions aside, not because looking for cause or causes is not a good approach; on the contrary, finding the causes will give some assurance that certain social signs will predict when problems are in danger of surfacing again, but I believe there is no time left for thesis, anti-thesis and synthesis. The number of homeless Americans will soon, in the year 2003-just 16 years from now-reach 18.7 million people, (see Snyder, Mitch, Community for Creative Non-Violence). Nor is there any time left to ignore the problem. The people are on the streets. Their numbers are growing. And they are not going away.

The need of the homeless to be free from the effects of homelessness or whatever brought them to the streets in the first place, cannot be separated from their need for housing. In the following paragraphs I will discuss a few of the problems of Anchorage's homeless as I found them to be. Some of these will be familiar to the reader and some will not, but it is important that the reader understand that I discuss homelessness in terms of a holistic approach versus what I call a "fragmented individual" approach. I will try to explain.

The fragmented individual approach is traditional and it is: "let-me-fix-you." Efforts to polarize the causes of homelessness and poverty in general in the United States have led us all astray. Instead of one national conceptual effort to sort out the entire milieu of sociological variables causing poverty, isolating them and then solving them; our nation has allowed instead, duplicated efforts which have not shared information in a link-up system. In turn, there has been confusion and frustration on the part of government on "how" to treat poverty. And in the end in our frustration, we have "blamed the victim," tried to fix each person according to what that person "did" to make themselves homeless and only dimly did we realize the extent to which the problems of poverty were social in nature and would effect us all.

A holistic approach is non-traditional. It is a new way of looking at poverty that asserts blame-casting is immature but deceptively close to looking for cause. The approach calls for: "let-us-help-each-other" for we are all victims: the homeless because they suffer from social stigma and neglect and the tax-payer because they suffer from the insanity of paying for top-heavy, impossible to administer, government social welfare bureaucracies that cannot put an end to poverty.

And yet as tax-weary as Americans are from funding social welfare programs, they are still willing to do more for the poor. In an April 1988 poll conducted by the National Housing Institute, a majority of Americans said they were willing to pay an additional \$10 to \$15 a month in taxes to pay for affordable housing for the poor! (see Anc. Daily News, April 7, 1988). What this means for a holistic approach will be discussed in part III THE SOLUTION.

A. ANCHORAGE'S HOMELESS. One of the most difficult problems for non-homeless Anchorage citizens comes up when they think about homelessness in our city, is watching Asian people come into our community and "make it," while our homeless appear to have stagnated: either unable or unwilling to "pull themselves up by their bootstraps."

This is logical thinking. The Work Ethic is very strong in our community as it is in the rest of the nation. Rags-to-riches stories are a reality and not just a figment of the imagination of Horatio Algier. The question then, is not so much "how" did people become homeless, but "why can't they get out of it?"

One answer is social isolation. This is an unfamiliar concept to an Asian and so is what we Americans call poverty. What is familiar to an Asian is a kind of poverty America has never seen. The kind of poverty that necessitates families drawing together if family members are to survive.

In America it would seem that affluence has driven us apart. The amount of leisure time Americans have enjoyed as the result of high wages and availability of time-consuming devices has made way for the concept:

"freedom of individual expression," which roughly translated can be interpreted to mean "if it feels good - do it." As members of social family units in America began expressing their individuality their "right" to do so often infringed upon the rights of others which in turn brought about more social change to America.

America has always been a nation of "rugged individualists," and even after the I'm okay-you're okay communal push of the 1960s, America continued to not only push forward the notion of individuality, but then along came minority rights. The results of this have been both good and bad: some minorities gained their rights but the loss of the nuclear family resulted in social isolation for many family members.

With the loss of family member encouragement and assistance, many Americans were unable to make the right decisions when it came to their own welfare. These were important decisions: whether to strive for higher education or whether to drop out, whether to marry young or whether to wait until a secure place in society could be achieved and of course, choices to do with alcohol, long an accepted practice in the United States for dealing with social tensions.

Homeless people in Anchorage do not make good decisions. In fact they make few decisions at all. The dependency upon others is in itself a mechanism that robs people of even limited skill in decision-making. People in shelters are told when to eat, when to sleep and in which line to stand. People accepting social welfare participate in the decision-making process only in terms of proving their poverty in what I call the "paper war" between the haves and the hav-nots.

A holistic approach to this stagnation would be one of involving people in choices that effect their immediate welfare and to reinforce this need, I offer the following from People of the Lie written by psychologist Dr. Scott Peck: "If the degree of freedom to choose the good is great, it needs less effort to choose the good. If it is small, it takes a great effort, help from others and favorable circumstances."

Asian people in our community are used to the "delayed gratification" that most Americans are not. They think nothing of living cramped together in small houses because they have lived close together and have learned to make certain personal sacrifices in order to get along. They have little need for the "control mechanisms" we Americans must place in our shelters if bedlam is not to break loose due to our invasion of one and another's social space.

Homeless people in our community are stagnated, but they are willing to get out of poverty if they just knew how. This problem however, leads to another question many Anchorage residents ask: are the homeless capable

both physically and mentally of helping themselves if a holistic approach is used. The answer to this question is like the fine gray line: some are and some are not.

From January 1988 to June of 1988, I attempted a congregate living project in Spenard as an effort to provide a substitute to the social isolation factor I discovered early on in my research. Without being descriptive due to the brevity and the demand of this presentation, I will try to comment on the effect congregate living had on several social problems related to homelessness.

Drugs and Alcohol. Homeless people drink a lot. Cheap wine is easy to get and it stops the mind from demanding decisions that most homeless people cannot come up with. However, going to AA meetings in a group as a sort of "family" social outing proved to be so popular amongst our group that often I felt "left-out."

About 12 alcoholics showed no ability to get into the "swing" of congregate living and either they were asked to leave and did, or we as a group of peers, put enough pressure on them that in the end they did leave. In retrospect I feel that these 12 people could have remained and made progress toward ending their alcohol abuse if there had been more than just myself on hand to lure them into cooperating with the rest of the group.

Hygiene. One of the most startling of my findings was the improvement in hygiene and how it came about. All the houses we rented were former "massage parlors." Our first was dark, dismal and ill furnished; but after we moved into our second home which was a house with many windows, hard-wood floors, a fireplace and a sauna downstairs; without exception the cleanliness and dress of every individual living there improved. I thought then as I do now that the people were saying: "I finally have something of which to be proud."

Skills. The most skilled amongst the homeless were the white, male veterans. This group of mostly men comprised the largest and most disproportionate numbers of homeless people. Between the ages of 35 and 55, these men were former licensed carpenters, electricians, plumbers, mechanics and heavy-equipment operators. However, what they also are, are a troubled lot. These men have been through the revolving doors of every agency that is supposed to help people with disabilities including the Veteran's Administration, so many times and with so little help, they are dizzy from their efforts.

I see these men as a tremendous resource. Not only could they, with a little help such as receiving borrowed or used tools, work to improve the properties of each other, or go into small businesses themselves; they could also teach many of the homeless some needed skills. But before this can occur, the rest of us Anchorage citizens must reach out to them and give them the respect they deserve.

The conflict of the Vietnam war as we all know, was not just between north and south Vietnam. The conflict was also between Americans: between those who thought we should be involved in that so-called "cold" war and those who didn't. And in the middle of this American conflict were those who served their country in that war. These are the men I believe suffer more in homelessness than any other.

Homeless vets in Anchorage feel they have been "thrown away" by their country, that they are no longer a valuable asset in terms of fighting wars, but they are a valuable asset in terms of their skills. And they are. But some are badly beat-up. These are the men who have hocked their tools to buy wine and drugs - to forget - and to die.

They are a loud and angry group who demand respect. Respect that rarely comes and when it does it comes in the form of "tribute" rather than anything tangible they can grasp to pull themselves out of poverty. They also had the audacity to call me, a middle-aged feminist, a "little do-gooder," but without them I would not have "toughened up" and been able to face much of the dirt and pain of the streets.

Mental Illness. I saw enough mental illness during my year of hanging out with "street people" to last me quite awhile. But it was not the numbers of mentally ill people that surprised me because as I expected, there were not that many, what surprised me was the severity of their illnesses.

The visible and audible assault of a person suffering from schizophrenia is not so much frightening as it is defeating: one has the feeling of running into a brick wall - there is nothing a non-trained person such as myself can do with this suffering. What did frighten me however, were the two cases of paranoid schizophrenia that I believed I spotted. From Psychology 101 at UAA I had learned that it is the paranoid schizophreniac that will kill at random, believing he or she is about to be killed themselves. The other form of schizophrenia I am told, is treatable with drugs and I did observe evidence of this. But the streets are not conducive to taking medicine on a regular basis. Drugs get lost - drugs get stolen - and some people believe they are "cured" and stop taking them. In my opinion, the supervision that already exists for these people should be increased.

I had expected most of the so-called mental illness amongst the homeless to be situational and it was. This form of mental suffering improved greatly when social isolation was removed. This is not to say that people who processed their thought systems slowly became bright articulate people in our congregate living environment; but I did notice a distinct change in what some call "acting out" behavior. Acting out is usually angry. It is the result of frustration from not being able to express thoughts and it is also a mechanism to gain attention. In congregate living, acting out at first became worse because most of the people suspected that they probably

would not be isolated in an environment of peers. However it was peer pressure that eventually convinced people to stop acting out.

Again, I recognize in retrospect the special needs of the situationally mentally ill and the recovering alcoholic or drug addict. I learned this the hard way, because had there been more volunteer help on the project, together we might have spotted the discrimination toward the mentally "different" from the recovering alcoholics! As it was this got by me and became the "straw" that toppled the project.

Fourth Avenue. Before concluding this brief description of the problems, or some of the problems, surrounding Anchorage's homeless, I would like to comment on "the avenue" as it is popularly called. Fourth Avenue is visible. It is a place where passers-by may view homeless people walking to and fro along the cement streets. But it is Fourth Avenue that has given many non-homeless people in Anchorage the impression that most of Anchorage's homeless are Alaskan Eskimos or Alaskan Indians.

This simply is not fact. As mentioned before in my discussion on "skills," it is the male veteran who comprise the largest segment of our homeless people. Without discussing this much further, I would like to comment that the "reality" of Fourth Avenue to Alaskan Natives is this: it is a network. A place to find each other. And it is also in close proximity to Alaskan Native Services Hospital.

III. SOLUTIONS TO HOMELESSNESS IN ANCHORAGE

The majority of Americans are still willing to shell out more taxes to help the poor, (see page 3). This information from the National Housing Institute's poll is both heart-warming and sad. Heart-warming because Americans are still showing the fine traits that built this nation: a willingness to work hard and share what this country has given them. But it is also sad because Americans have been paying through the nose to support social welfare programs for years; and never once have these tax-payers seen an end to poverty in sight.

The following suggestions toward solving the homeless problem in Anchorage are also directed at solving homelessness in our nation. What the suggestions are not however, are complete. The reader will find his or herself asking: "sure, but how would we pull this off?" To these people I can only say that this presentation is not a thesis which details the "how" of anything and I am not a person who has all the answers. What I am however is what I had the good fortune to learn about homelessness. There is not the slightest doubt in my mind that the homeless in our city will work with a little care and guidance from the rest of us, to come up with their own self-defined solutions which I might add is logical for after all, they know more about the problem. Remove the social isolation and help the homeless form the social structure of a group and you will have what we had: a large and unruly family!

The federal government of the United States should stop taxing American citizens for social welfare programs that do not work that in fact only serve to perpetuate poverty by creating masses of welfare-

dependent people who in turn only serve to support the bureaucrats working to help them.

Respecting the wishes of American tax-payers who want an end to poverty in the United States, the President should call for a "state of emergency" in the nation to end homelessness and call upon small communities for assistance. On a nation-wide scale the homeless problems would hence be divided up into small more manageable units.

Communities could fairly easily and speedily comprise grass-roots structures made up of professionals, the homeless and any concerned non-homeless citizen. In Anchorage, community councils could canvass their areas for available decent housing and for waste as well. In our self-help project we were able to furnish three houses in six months with items thrown away in dumpsters or abandoned along road-sides or from garage sales, the Salvation Army or Bishop's Attic.

Congregate living should be adopted in the interim as a means of getting people out of shelters and out of social isolation. There are plenty of rental units available in Anchorage to do this and by pooling the \$120 each individual could receive under General Relief Assistance for rent, a reasonable amount of rent could be paid.

As decent housing is made available, communities should enlist the aid of the homeless to refurbish the structures. In this regard, I particularly would remind the reader of our skilled male veterans. I particularly see a need for building renovation versus new construction because again, homeless people indeed all people, need to participate or work for what they believe they can achieve. If there are any readers (and I doubt there are) who doubt this, all one has to do is look at most low-income housing projects.

All information regarding the effects of homelessness should be shared with the homeless. This includes personalized therapy designed to meet cultural needs. It is my opinion that an intense personal effort is one of many or at least several volunteers working with each congregate housing unit, bringing help to the people but also keeping in mind that people need to make their own effort to go where the help is.

In each congregate living "home," I believe there should be at least two people from the community: one male and one female (for balance) that are capable of giving up the trappings of professionalism. By that I mean that not only do people used to living in poverty "distrust" professionals, they can also spot a "phony" in a heart-beat. Phony professionals are people with big egos who care more about controlling people to make their group effort look good to the rest of the community, than they do about helping people to help themselves through the painful process of struggle.

My discussion of solutions to end homelessness has been quite short but time and space will not permit me to elaborate further. So before I move on to my conclusion, I would like to mention a sensitive problem that has an easy solution. This problem is one some people refer to as the problem of "territorial turf."

I believe there is no end to the human desire to make a better world by helping those of us who are needy, but something goes wrong between our ideals concerning what we set out to do and what in the end we actually accomplish. An example of this is our social welfare system. Where once Americans believed in the creation of a federal structure to help the needy, Americans now realize that what we have actually created is a giant beast that we must feed daily if the poor are even able to enter its doors.

The same reality can occur to any organized effort no matter how small if the structure itself demands more than do the people the structure is designed to help. In other words, if a single community effort must compete with other community efforts to look good in the eyes of the greater whole: the community at large, then that single effort will work harder to protect its structure than it will to help the needy.

This is the problem of territorial turf: a jealousy on the part of a group with the same mission as other groups, a condition I observed several times as Anchorage groups worked to help the homeless. The solution to this turf problem is one of: openly admitting that it exists and taking actions to prevent it. And prevention is one of recognizing that all groups must work together for the common mission. After all, an organizational structure is not a giant beast with a life of its own. We create the beasts and we can kill the beasts.

IV. CONCLUSION

Anchorage has an opportunity few other cities in the United States have to provide already constructed housing for the city's homeless. And, there is another opportunity. Since Anchorage does have needed housing, the city could work to also develop a holistic program for the homeless that might possibly become a model for the rest of the nation.

In June 1987 the Senate gave final approval to the Homeless Assistance Act of 1987, a measure supporters call "the foundation for a national commitment to end homelessness in America." The Act defined government intention as a "clear responsibility and existing capacity" to fulfill an effective and responsible role to meet the basic human needs and to engender respect for the human dignity of the homeless.

Yet one month later police in Minneapolis, aided by the Public Works Department brought out front-end loaders, and targeted homeless shacks for demolition. Speaking to the press, Deputy Police Chief Bob Lutz said, "When they break the law, when they try to take money from other

people, when they urinate in public and are involved in disorderly conduct, there are no constitutional protections for that conduct and we will aggressively move against it." No constitutional protections for "some" Americans? What happened to the folks in Minneapolis? Have they never read the United States Constitution or heard of the 1949 federal housing policy?

No. What happened in Minneapolis could conceivably occur in any city in the nation and probably will, if homelessness is not stopped. The number of homeless in that city grew so large people became hysterical. The urinating of the homeless in public was appalling and non-homeless people were so revulsed they obviously did not care that with no homes there are also no toilets.

Many of us in Anchorage believe this could never happen here. But it could. During the same week the Municipality of Anchorage and the Brother Francis Shelter received an award in 1986 for their efforts to help the homeless, Eugene Tunuchuk died in a cardboard box at Ship Creek. When they found this man he had frozen vomit in his throat and some people commented: "Well he was a drunk, what can you expect?" But, no one said much, when four days later Don Rosenthal who did not drink, was found on the bluff behind Third Avenue near death with frozen feet and a frozen hand.

The fine gray line exists. On one side of this foggy barrier lie the needs of the homeless and on the other side lie the needs of the non-homeless. Both sides have understandable and logical conclusions regarding poverty, but human beings do not need a textbook or sociological analysis to act. Before the technology of our hard sciences and the technology of our human sciences, humans simply "did" what they were called upon to do. To those who will say "things are more complicated than that today," I would reply that things are not so complicated that we cannot stop treating poverty from a distance, from behind our desks and our spectacles and get out there and face the homeless and ask them what can be done.

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HOUSING FOR SERIOUSLY MENTALLY ILL CHILDREN AND ADULTS

by

Chuck Gasta
Sylvia Condry
Lona Dayan

August 19, 1988

HOUSING FOR SERIOUSLY MENTALLY ILL ADULTS AND CHILDREN

Southcentral Counseling Center

August 19, 1988

I. INTRODUCTION

Low cost housing for the seriously mentally ill is desperately needed in the state of Alaska. Housing for severely mentally adults and children in Alaska and specifically in Southcentral Alaska must be carefully developed to provide a continuum of care for these individuals. Different "levels" of "care homes" must be provided and a specialized environment for each level developed. Individuals must have the opportunity to advance through the system to the level at which they feel comfortable. Individuals should not feel like they failed only because they chose to remain in a group home or residential setting. Supportive services such as job skills, training and placement; supervised employment and job sharing opportunities; and ongoing case management services must be available to allow the individual to achieve his/her maximum potential. All services should be developed cooperatively in the community through a variety of State, local, and private funding sources securing input from consumers, providers, family members, and mental health professionals.

II. HOUSING FOR ADULTS

Group Home Environment: The first level of care for seriously mentally ill adults would be in an intensely supervised group home living setting. Housing requirements would require a large home (3-4 bedrooms minimum) with an attached apartment for houseparents. Staffing patterns would be such to provide extensive supervision of individuals. Clinical staff would be available at all times to teach basic living/socialization skills. Client/staff ratio would be 4:1, to provide individualized care to each individual in the home. Transportation to other day treatment programs in the community would be available. Medication monitoring would be available. Although it is anticipated that a few individuals would enter the group home from the Alaska Psychiatric Institute (API), remain at the facility a short time to learn daily living skills, and then move on to the next level, many individuals would never progress beyond this level.

Transitional Center (TC): This center provides a somewhat less structured level of care for seriously mentally ill individuals. This Center would provide daily living skills training as well as assist individuals in developing employment skills and opportunities. Typical residents would include individuals who had been admitted to the Alaska Psychiatric Institute for a psychotic episode but not requiring the intense supervision of a group home setting. Housing requirements would be a six to eight-plex with two to three bedrooms in each dwelling. Individuals would be required to cook their own meals, clean their apartments, and work with others in their particular apartment as roommates. Medication monitoring and clinical case management would be available. Transportation to other day treatment programs in the community would be available. Staff would be present 24-hours per day. A respite component

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would also be available for placement of individuals requiring short-term (1-21 days) observation/intervention. A typical placement at the transitional center would be from one to three months.

Transitional Housing for Offenders: Additionally, a specialized transitional half-way house for mentally ill offenders released from the corrections system should be developed. Ideally, this program would be a community effort utilizing the expertise of the Forensic Unit of API, the Department of Corrections, the Department of Health and Social Services, and mental health providers. This level of care would provide a more structured placement than the transitional center and would be targeted toward integrating the mentally ill offender back into the community. Strict medication monitoring and intense clinical case management would be available. Work therapy would be an important component of this program. Individuals who participated in a pre-trial diversion program (in lieu of sentencing through the correctional system) would also be eligible for placement in this program.

The Half-Way House: The half-way house would provide basically the same level of care as the TC but would be reserved for individuals who had advanced through the TC program and wanted a prolonged placement at the TC level. Housing requirements would replicate the requirements of the TC. All ancillary services offered at the TC would be available at the half-way house. A six to eight-plex with one to three bedrooms in each unit would meet the needs of this program.

Supervised Apartments: Supervised apartments would provide the most advanced placement in the continuum of care. The seriously mentally ill individual would rent the apartments at low costs which would be located in various locations throughout the Southcentral area. These individuals would be living in their own apartment but would still receive ongoing case management services. Employment placement/job sharing opportunities would be available. Minimal clinical intervention would be available. This level of care is designated for individuals who are able to adequately deal with the daily stressors of life with minimal assistance.

III. HOUSING FOR SERIOUSLY MENTALLY ILL CHILDREN (AGE 13-17)

There is a need for a continuum of care for seriously mentally ill children. Several facilities are available in the state for children with emotional disturbances but none are specifically targeted for children with a serious mental disability (i.e. bi-polar disorder, schizophrenia). Mental health professionals are seeing more and more children with these disabilities.

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Residential Care (Long-Term): Long-term residential care for these children is a need which is currently unmet within the city of Anchorage. Children with a serious mental disability are housed at the Alaska Psychiatric Institute during the acute portion of their illness and are either sent home or to an out of state residential treatment facility. The last option is extremely costly to the state.

Housing requirements would require a large home with an attached apartment for houseparents. A large commercial building could be used for the daytime portion of this program. Clinical staff would be available at all times to teach basic living/socialization skills. Medication monitoring would be available through a nurse assigned to the home. Individuals in the home would be closely supervised, with trained staff available 24 hours per day. A school program, specifically tailored for the residents of the home, affording an opportunity for a high school education would be a priority goal of the home. The school component could also be available for seriously mentally ill children in therapeutic foster homes and in respite care. Educational programs should be developed in concert with the Anchorage School District. Day-only (7:00 a.m.-6:00 p.m.) respite care could also be provided as a portion of this program to enable caregivers to work.

Respite Care: Respite care for seriously mentally ill children is an important piece of the continuum of care. Caregivers need a "respite" — a safe and therapeutic place where their children can stay so the parent can travel for work, take a vacation, or just to take some "time out." The respite is not intended to be "just a babysitter," but a place where these children can go and receive quality care and treatment. Programming would be similar to the residential care facility, but of short-term duration. It should be noted that these programs, although expensive, are much more cost effective than housing an individual at the Alaska Psychiatric Institute or in a residential treatment program outside the state of Alaska. Additionally, it is more therapeutic to have a child in their home state or partially in their home, rather than in an institution outside of Alaska. A residential home with three to four bedrooms would meet the needs of this program. Backup support services (day-only respite and school services) could be available through the residential care facility.

IV. SUMMARY

Low cost housing for the seriously mentally ill is desperately needed in Alaska. Presently, residential treatment programs use a portion of their funds to rent housing. If properties were purchased now at low cost, long-term savings would result for treatment programs. Purchase of facilities for programs would also help alleviate excess housing in Alaska.

*ask**

Marketing and Research Group

ALASKA RURAL HOUSING NEEDS

by

Mary P. Collins

Senior Partner
ASK* Marketing and Research Group

August 26, 1988

**RESPONSE TO CALL FOR PAPERS
ALASKA HOUSING MARKETING COUNCIL**

PREFATORY REMARKS

ASK* Marketing and Research Group is pleased to submit this paper on Alaska rural housing needs to the 1988 Governor's Housing Conference.

In 1987, the Alaska State Legislature passed Senate Concurrent Resolution 21 requesting the Department of Community and Regional Affairs to conduct a study of rural housing conditions and the need for rural housing. The Alaska Department of Community and Regional Affairs contracted with the Rural Alaska Community Action Program (RurAL CAP) to determine current conditions in rural housing and assess the need for additional rural housing. ASK* Marketing and Research Group (then ASK* Marketing/Information Search) was the principal consultant in the design, execution, and analysis of the research effort.

Areas excluded under contract specifications were: the Municipality of Anchorage, the City of Fairbanks, the City of Juneau, the City of Sitka, the City of Ketchikan and all military bases.

The study was conducted in two phases. In Phase I all the existing relevant information on housing conditions in Alaska was gathered and assessed. It was expected that a survey would need to be conducted to supplement and update existing data concerning rural housing.

In Phase II, a household-level survey was conducted. Housing authority directors, community planners and other key informants were also interviewed, and the information gathered was analyzed to accurately determine the current conditions of rural housing stock and to project future housing needs.

This paper contains the essential findings of current housing conditions and needs in remote communities in rural Alaska. A full copy of the report can be obtained from the Alaska Department of Community and Regional Affairs.

August 26, 1988.
-Mary P. Collins, Senior Partner
ASK* Marketing and Research Group

INTRODUCTION

According to housing authority executive directors, experienced weatherization contractors, Alaska Dept. of Community and Regional Affairs (DCRA), and the Housing Advisory Committee, the evaluation of these four basic categories provides an accurate indication of the living conditions in rural Alaska. These categories were:

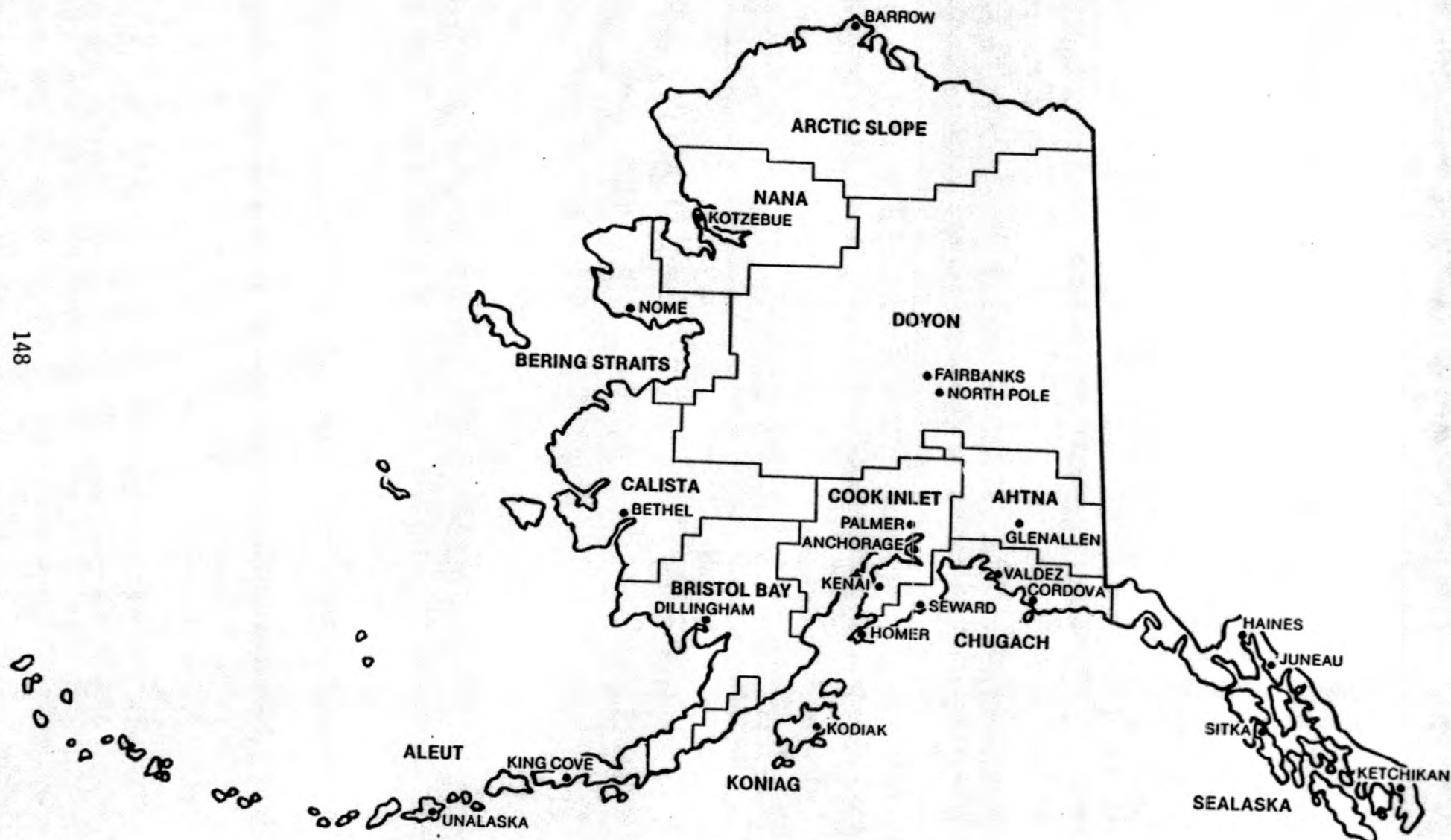
- o crowdedness within the home,*
- o ability to maintain a comfortable temperature in the home,*
- o home sanitation facilities*
- o safety of the home.*

There were several factors within each of these four categories that were used in evaluating overall living conditions within a community or region.

The first task was to determine the amount of new housing stock that is currently needed and the number of homes needing immediate repair. The second task involved projecting new housing stock and repairs required over the next ten years.

The number of households per region was estimated by dividing the total 1985 population provided by the Alaska State Demographer's office, by the average household size data acquired from the survey. The number of households per region is found in several of this report's summary tables.

In many of the tables, the quantity listed under TOTAL is a summary of this report's survey data. Additional statistical information on confidence levels, derivations, and other features too detailed for inclusion in this general audience report is available. This excludes the Municipality of Anchorage, the City of Fairbanks, the City of Juneau, the City of Sitka, the City of Ketchikan and all military bases. Additional statistical information on confidence levels, standard deviations, means and features too detailed for inclusion in this general audience report is available.



EXECUTIVE SUMMARY

The key findings of the 1988 Rural Housing Needs Assessment Study include:

● HOUSEHOLD SIZE AND OVERCROWDING

The average number of members per household in rural Alaska was 3.70. The average household size ranged from a low of 2.6 in Ahtna region to a high of 5.3 in NANA region. In comparison, Anchorage households have an average size of 2.72.

The Arctic Slope region had the highest percentage, (18.7%), of households with three or more generations per house. Calista region was second with 16.4% and Bering Straits region had 15.4%. Cook Inlet had only 0.9% of households with three or more generations.

Overcrowding conditions appeared to be the worst in the Calista and NANA regions. 29% of households in these regions had 100 or less square feet per resident..

The average house size ranged from 650 sq. ft. in Bering Straits region to 1,996 sq. ft. in Chugach region while the average was 1,162 sq.ft. In comparison, Anchorage households have an average of 1,635 square feet per house.

Nearly 87% of the houses in NANA region had less than 300 square feet. 81% of the houses in Calista region and 72% of the houses in Doyon region were less than 300 sq ft.

The average square footage per resident ranged from 616 sq.ft. per resident in the Cook Inlet region to 137 sq.ft. per resident in the Bering Straits region. The survey average was 333 sq.ft. per resident. In comparison, Anchorage had an average of 600 sq.ft. per resident based on an average household size of 2.72 and 1,635 average sq.ft. per residence.

● PHYSICAL CONDITION OF DWELLINGS

43% of the house foundations needed major repair in Bristol Bay region. 57% of the houses in Bristol Bay region and 43% of houses in Ahtna region needed major repair.

The highest percentage of houses rated in need of replacement by region was Ahtna with 21%, followed by Doyon region, 17%, Aleut region, 10% and NANA region, 10%.

The total 6,740 new houses needed was determined by consolidating the total number of homes needing immediate replacement with the total number of households with three or more generations. Doyon region alone accounted for 3,169 of the new houses needed.

Comments and observations from field interviewers included several inches of glaciation on walls and windows, snow-filled attics, badly damaged roofs and siding from high winds, and seriously heaved foundations. Without correction, foundation heaving negates most benefits from weatherization activities since windows and doors become warped or separated from the house frame.

● SIGNIFICANCE OF FINDINGS AND ESTIMATED COST OF CORRECTIVE ACTION

Although conditions vary widely, the inescapable conclusion apparent from the survey results is that housing in rural Alaska has dramatically poor housing conditions in terms of space per resident and state of repair. **Crowded multi-generational families occupying dwellings in run-down condition is far too prevalent.**

Based on the current costs for rural housing of \$116,000 per new house as described in this report, \$781,813,000 will be needed to build the estimated 6,740 houses.

If 6,740 houses were built to provide new housing for homes needing immediate replacement and new houses for the displaced third or fourth generations, **overcrowded conditions in rural Alaska would still be a problem.**

In order to address crowded conditions not due to multi-generational households three enhancement levels were examined:

Replace/add to houses with 200 sq. ft. or less per resident
Replace/add to houses with 250 sq. ft. or less per resident
Replace/add to houses with 300 sq. ft. or less per resident

Two solutions were considered: a 320 sq.ft. addition at a cost of \$15,000 or, if the addition did not alleviate the conditions, a new house at a cost of \$116,000. This \$15,000 figure is based on the average cost of a BIA housing addition under the HIP program.

It was estimated that a total of approximately 19,188 houses had 200 sq. ft. or less per resident; 15,088 of these would require an addition while 4,100 need new houses. Based on current costs and excluding homes needing replacement, \$491,717,000 would be required to alleviate overcrowding at the 200 sq.ft. level. At the 250 sq level, \$692,243,000 would be required, and at the 300 sq.ft. lev. \$882,521,000 would be required.

The combined cost of providing new housing for homes needing replacement; third and fourth generations needing a home; and additions or new homes to alleviate overcrowding at 250 sq.ft. or less per resident was \$1,474,056,000.

● NEED FOR A COORDINATED, COMPUTERIZED HOUSING INFORMATION SYSTEM

In the course of acquiring data for this study, the foundation for an excellent statewide population and demographic computer database was laid. It was also determined that there is a definite need and interest to establish a central computer database with dial-in access for weatherization contractors.

Although the State of Alaska Weatherization Office collects summary data from all weatherization contractors, they do not maintain a computerized database. The result is that there is no way to analyze statewide data or to create reports as needed.

We are aware that there have been discussions with the Department of Energy to which the DCRA Weatherization program submits reports. *It is important that any planning for a coordinated, computerized data collection and reporting system include the capture of essential community demographic and housing data.* This information is valuable for planning and monitoring of key social and economic trends statewide. Coordination with the AK Department of Fish and Game's subsistence database must also be included.

Major benefits obtained from this will lower administration costs, improved reporting, forecasting support, improved coordination of information between agencies.

● POTENTIAL FOR SMALL-SCALE MANUFACTURING AND LOCAL JOBS

From the period of 1984 through to and including 1988, the Weatherization program represents a significant ongoing residential construction program in Alaska, estimated to include over \$9.1 million in materials alone. When we consider this plus the added economic contribution of a major rural housing program which can be valued at approximately \$1.2 billion to add to the existing housing stock and remedy deficient dwellings, the potential exists to aid the development of Alaskan-based wood products, thermal window and insulation manufacturing. With adequate market planning, local industries could leverage off the in-state market for export.

We suggest that an economic feasibility study be commissioned to examine the various aspects of this.

STATE WEATHERIZATION COSTS - APPROXIMATE VALUES (\$ 000's)

	1984	1985	1986	1987	1988
Total Budget	\$7,000.	\$8,000.	\$4,575.	\$3,984.	\$3,810.
Administration	820.	950.	526.	394.	449.
Program support	3,000.	3,800.	2,054.	1,878.	1,787.
Materials	2,500.	2,550.	1,453.	1,279.	1,191.
Insurance	125.	200.	175.	172.	130.
Transportation	555.	500.	367.	261.	253.
Homes Served	2,300	2,700	1,000	1,600	1,860

Source: AK Dept. Community Regional Affairs, Weatherization

**OTHER ASPECTS CONCERNING POTENTIAL ECONOMIC CONTRIBUTION OF
A MAJOR ALASKAN RURAL HOUSING PROGRAM**

What might be the economic contribution to the state of funding an ongoing housing construction program estimated at over \$1 billion, designed to improve rural housing conditions? (In other words, there could be created a major in-state market for construction materials, windows, doors, insulation, labor, etc.)

One possible scenario: A Fairbanks window company manufacturing thousands of thermopane windows; South-central firm manufacturing doors and cabinetry; yet another building wood-laminate furniture; etc. Construction labor is divided so that rural residents are engaged in building/rebuilding their own communities. Perhaps this could be leveraged to assist new export industries based on Alaskan wood and other products. Appropriate constraints could be placed on the sourcing of materials to favor in-state manufacture.

Given the cost and potential economic impact of fully meeting rural housing needs, a study should be performed to determine the potential economic implications of this in its fullest implications. An important secondary benefit of the study would be to determine not only a true picture of the role of the construction industry but could also uncover new opportunities for Alaskans. Such a study could be funded for approximately \$100,000 to \$150,000.

This could be a significant rural-urban joint economic venture. If begun in the second quarter of 1988, the study could be completed in time for full deliberation by the next Alaskan legislative session.

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"MOBILE HOMES"

By:

Robert H. Schenker
Mobile Home Bulk Sales Coordinator

Gay A. Jurgensen
Mobile Home Marketing Specialist

Alaska Housing Finance Corporation

August 15, 1988

AHFC Mobile Homes are Finding New Life

Mobile home sales for the Alaska Housing Finance Corporation have significantly increased this summer and have surpassed repossessions, leading the way to stabilization in that section of the housing market.

In June, AHFC sold 117 units statewide as opposed to repossessing 48. April and May show similar figures with 89 and 85 units being sold respectively in those months and only 52 and 28 being taken in.

"AHFC sees the depletion of the repossessed mobile home inventory in these areas as stabilization of that section of the housing market," said Gay Jurgensen, AHFC's mobile home marketing specialist.

At the housing market financing peak in the mid-1980s, AHFC financed approximately 4,200 mobile home purchases. So far, AHFC has repossessed nearly 25 percent of those units. As a result of these repossessions, AHFC in 1987 owned about 1,200 units. However, due to increased sales the inventory has been significantly reduced to just over 950. In Juneau, the inventory was reduced from a high of 82 to 6. In Fairbanks, an inventory of 120 was reduced to 30. Anchorage's inventory still remains the highest at more than 800 units.

The increased sales are due in part to AHFC's concentration on a marketing plan for mobile homes in 1987. A loose network of mobile home brokers haphazardly holding AHFC listings was overhauled into a system where all listings are pooled into a general inventory. More than 60 AHFC-approved agents sell from that inventory.

While individual unit sales make up a majority of the sales and contribute significantly to the overall reduction of the inventory, bulk sales are becoming more significant. AHFC this spring put into place regulations allowing for bulk sales outside of the traditional housing market.

AHFC's first two bulk sales took place in June with sales of 13 units which went to Kodiak and another sale of 19 units which went to Afognak. Twenty units were recently sold on a sealed-bid basis to four Anchorage mobile home park owners. Another seven were sold to another park owner.

Currently, AHFC is seeking bids on a 125-unit bulk sale. The units are being offered in 5-unit lots. One of the requirements of the invitation to bid is that the units must be removed from the Anchorage area to help stabilize the city's housing market.

The sale is being advertised in Alaskan and West Coast newspapers. Sealed bids will be accepted until Aug. 24 when they will be publicly opened in Anchorage.

In the area of individual sales, AHFC has been targeting the previously untapped area of using the units for recreational purposes. A model mobile home was set up in the Fred Meyer parking lot just off the Seward Highway for the summer to show prospective recreational users what could be done with a mobile home. The unit is staffed daily by AHFC-approved mobile home agents.

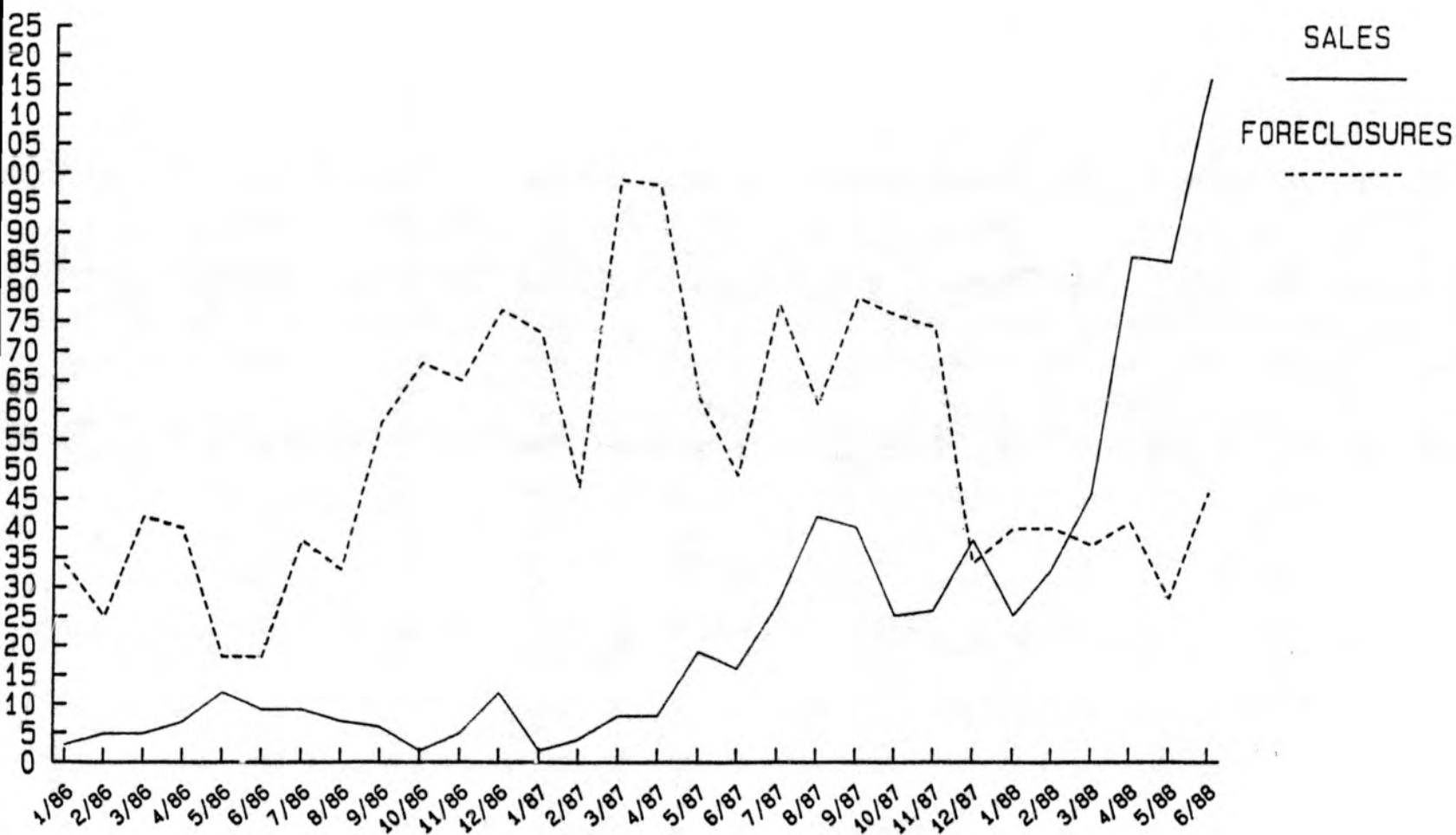
The Anchorage units range in price from \$5,000 to \$40,000 and are primarily single-wides. All types of make and model are available. Approximately 25 double-wides are available and a few are on land as opposed to being in a park. Approximately 75 percent of the sales so far have been for cash, however, financing is available through AHFC currently at 9-1/2 percent interest, 10-year loan term with a 10 percent downpayment.

In another area, to decrease holding costs of the large inventory of units, AHFC last summer opened a sales/storage lot at the corner of King Street and 104th Avenue which can be seen from the northbound traffic lane of the Minnesota Freeway from the Old Seward Highway. The lot now serves as a show area, and during June sales from the lot made it the second largest "selling park" and sales are expected to continue.

ALASKA HOUSING FINANCE CORPORATION

Mobile Home Sales and Foreclosures

NUMBER



THE MOBILE HOME REPOSSESSION PROBLEM:

ONE POSSIBLE SOLUTION

BY

RICHARD P. BARRIER
GENERAL PARTNER
MALASPINA PROPERTIES

AUGUST 9, 1988

THE MOBILE HOME REPOSSESSION PROBLEM:

ONE POSSIBLE SOLUTION

The mobile home industry in Alaska has been decimated by AHFC repossessions in the past three years. At least 1500 mobile homes have been repossessed by AHFC during this period. AHFC currently owns nearly 1,000 of these repossessed units. To date, AHFC has taken no major steps to help slow down the tide of repossessions.

In September, 1987, I submitted an analysis and possible solution to this problem to the staff and board of AHFC. This paper is a reproduction of most of that letter. The numbers are all nearly one year out of date, but the analysis still holds true today.

BACKGROUND

The major contributing factor to the unrealistic values and loan levels for mobile homes financed in the early 80's was the introduction of 20 year financing by AHFC. Prior to that time, and at all times in the rest of the country, the maximum term on these loans has been 10 to 12 years. The impact of drastically reducing monthly payments (from \$413 to \$310 for a 10 year versus 20 year \$30,000 loan at 11%) was to greatly (and artificially) increase the value of the units being sold.

The secondary result of the 20 year financing was the slow equity buildup or debt reduction, compared to shorter term financing. Therefore, sellers in 1987 who purchased mobile homes in 1982-84 are finding that the value is now considerably less than they paid, and that their loan balance has not declined appreciably. The net result is a loan balance that greatly exceeds current value, thereby making a sale of the unit impossible, without seller subsidy to the buyer or AHFC.

CURRENT PROBLEM

Owners currently have little motivation to keep paying on their mortgages, since the rate of reduction of principal balance is insufficient to bring their loan balance in line with current values. Therefore, with any "disturbance" of owners' life situation (loss of job, leaving the state, divorce, need for different type of housing, etc.), the owners are very likely to give their units back to AHFC. Even with a stronger overall market, it is doubtful that the value of many of the AHFC financed units will ever equal the loan balance.

POSSIBLE SOLUTIONS

To encourage owners to keep their units, AHFC could:

1. reduce payments
2. reduce interest rate
3. reduce loan balance
4. reduce amortization term

In any given case, one of these alternatives might cause an owner to stay with his loan, or allow him to sell it without personal subsidy. Of the solutions listed above, only one is unique to the mobile home program and can be directly linked to the owners' current plight - amortization term. All AHFC loan programs featured low interest rates and therefore low payments. But only the mobile home program introduced a longer than conventional loan term, which had the immediate effect of inflating the market.

RECOMMENDATION

Based on the points raised above, I recommend that AHFC seriously study the feasibility of adopting the following policy:

The loans for all AHFC-financed type II mobile homes shall be rewritten to reflect a 12 year amortization term from the date of issuance of the loan. Payments shall remain unchanged.

To adopt this policy, each outstanding loan would be rewritten to a term equal to 12 years minus the years since inception. The current loan balance would be the principal to be amortized, and the payment would remain the same. I will provide an example.

For purposes of this example, I will use one hypothetical loan: \$30,000 original loan balance, 11% interest, 20 year term. The payment on this loan is \$310 per month. Using the policy proposed above, all loans of this nature would end up with 12 years of payments at \$310 per month, regardless of the year that the loan was originated. The effective overall interest rate would be reduced to approximately 7%. Depending upon the age of the loan, the effective interest rate for the balance of the loan could range from 6.5% to -2%, but all loans would have a cumulative or overall rate of 7%. The following table summarizes the effect of this policy on loans originated in 3 different years, assuming that the policy is implemented in 1987.

	Year Loan Originated		
	1982	1984	1985
Loan balance in 1987:	\$27,244	\$28,529	\$29,074
Number of years left to amortize:	7	9	10
Total payments to date:	18,600	11,160	7,440
Total payments left:	26,040	33,480	37,200
Total payments over loan life:	44,640	44,640	44,640
Interest rate, overall:	7%	7%	7%
Interest rate, on remaining balance:	-1.3%	4.7%	5.1%
Loan balance in 1988	23,352	24,754	26,788
1989	19,460	22,144	24,382
1990	15,568	19,409	21,850
1991	11,676	16,543	19,186
Loan balance in 1991 if loans are not reamortized	23,651	25,644	26,487

COMMENTS

An owner in the above example who purchased a home in 1982 would find that in 1987, his \$31,500 mobile home may be worth only 60% of that, or \$18,900. If his loan balance is \$27,244, with fifteen years of payments left, it is unlikely that anyone would assume his loan. There is a good chance that the unit will be repossessed by AHFC. If the loan of this owner were rewritten as proposed, the balance would still be \$27,244 in 1987, but only 7 years of payments would be left. If a potential buyer computed the "true" value of the balance, he would find that \$310 payments for 7 years at 11% interest would equate to \$18,105 in principal, or \$800 less than the current value. The potential buyer would therefore be willing to assume the balance under the new terms.

Using this same example, if the owner wanted to sell his unit in 1991, the loan balance would be down to \$11,676. With three years of payments left, a potential buyer would in all likelihood assume this \$11,676 balance. Contrast this to a potential buyer walking away from a \$23,651 loan balance with eleven years of payments left (and AHFC repossessing the unit, marking down the price to \$10,000, and reselling it). Is an owner likely to hold onto his unit until 1991, if he knows that he will be unable to sell it then for the \$23,651 loan balance? Or is it better to reamortize the loan and give the owner hope that he may be able to sell it someday?

I believe that a program such as the one described above could go a long way toward slowing down and ultimately halting the repossession of mobile homes by AHFC. This program has obvious costs to AHFC, in terms of overall return on the capital dollars invested, (a loss of 3-4% in return on its investment). However, it appears that this program would cost the state less than continuing to repossess units, taking a capital loss upon repossession, and incurring holding and sales costs. If the state ultimately ends up owning, at one time or another, 50 to 75% of its total

portfolio of mobile home loans (which is highly possible), the loss to the state could easily be \$75 to \$100 million or more. Implementing this program would cost considerably less than this, certainly considering net present value.

Mobile home loans are different from other AHFC back programs and affect the buyers differently for the following reasons:

1. Mobile home loans are General Fund appropriations, not bond proceeds.
2. The AHFC loan program changed the very nature of mobile home loan practices in Alaska when it went to a 20 year amortization.
3. Values of mobile homes typically decline over time, except in highly inflationary periods. Therefore, it is unlikely that many mobile home values will ever reach the outstanding loan balance on a 20 year amortization. Stick-built properties, on the other hand, can appreciate over time, to the point that values exceed loan balances.

If AHFC is to avoid continuing disruption of the mobile home markets and piling on additional costs and losses, it needs to take an active step toward stemming the tide of repossessions. The proposal above is one alternative.

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Governor's Housing Conference
September 23, 1988
Anchorage, Alaska

Index to Authors of Conference Papers
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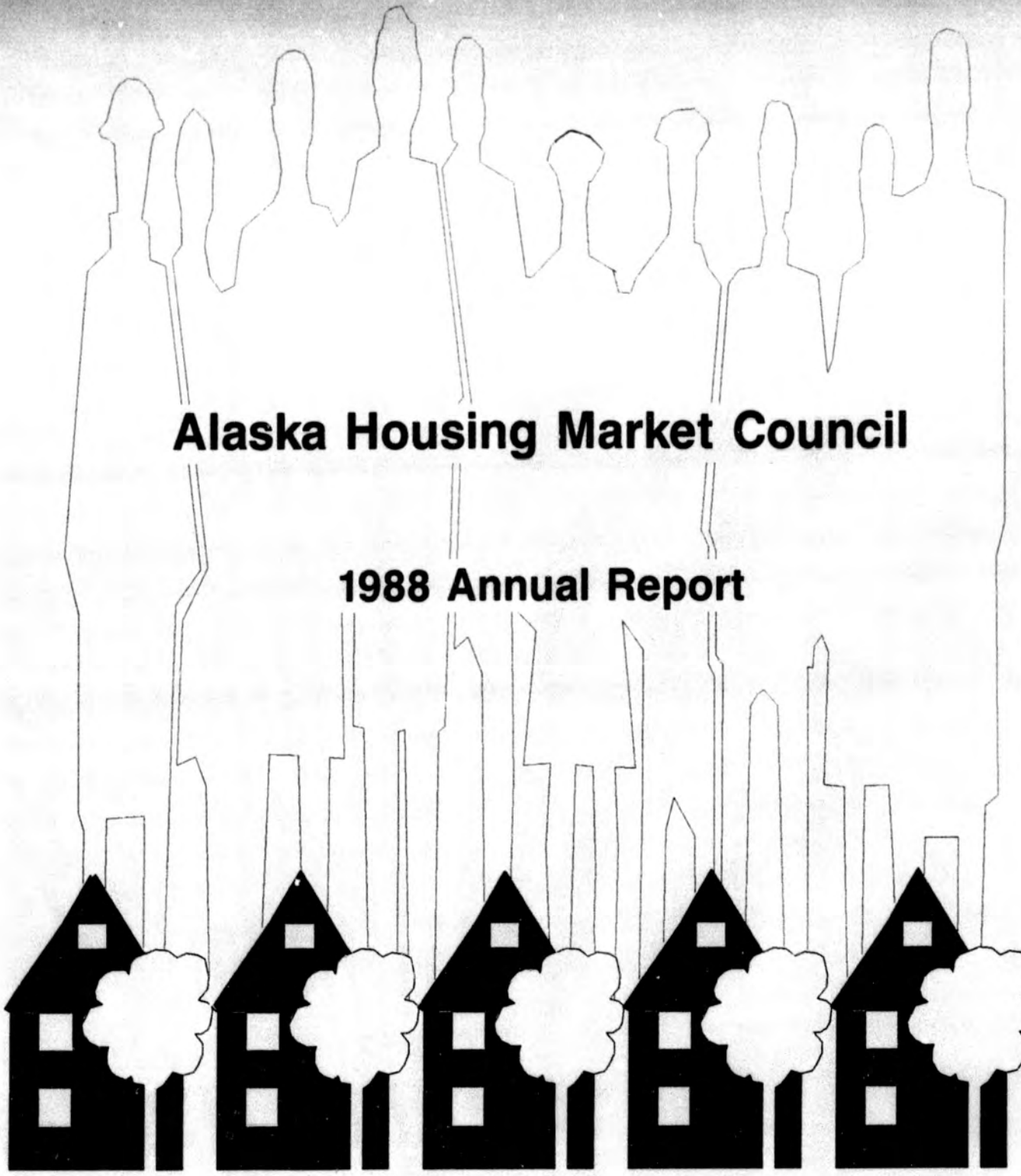
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The background of the cover features a stylized, black-and-white line drawing of a city skyline. In the foreground, there are five identical houses, each with a dark roof, a chimney, and a flower-like shape on its side. Behind the houses is a row of tall, thin, rectangular buildings of varying heights. Above these buildings are several tall, thin, irregular shapes that resemble stylized trees or skyscrapers.

Alaska Housing Market Council

1988 Annual Report



GOVERNOR STEVE COWPER



STEVE COWPER
Governor

ALASKA HOUSING MARKET COUNCIL

Council Members

Cynthia Parker, Chair
Ron Clarke
Mike Harper
Ron Lehr
Ray Price
Pam Throop

Susan Taylor Buchanan
Carol George
Sam Helms
Larry Mercurieff
Dave Rose
Bert Wagnon

Council Staff

Glenda Straube
Mark Romick
Brenda Glaze
Michelle Hill
Michael Ser'gent

Executive Director
Staff Assistant
Hotline Coordinator
Hotline Specialist
Secretary

1988 EXECUTIVE DIRECTOR'S REPORT



Glenda Straube
Executive Director

Alaska's real estate market has been hard hit by economic recession; stories about plummeting home values and burgeoning inventories of repossessed homes are common occurrences in the media. Governor Cowper's commitment to solving these problems led to the establishment of the Alaska Housing Market Council. Since the Council began full operation in early Fiscal Year 1988, the State has come a long way in developing programs to speed recovery of the housing market.

With the initiation of the Mortgage Information and Referral Hotline, the Council has been able to provide troubled homeowners with objective information and an empathetic ear. Workshops and hearings throughout the state also offered information and allowed us to gather first hand knowledge about public concerns. If there is anything we have learned, it is that people want information, good news or bad news, so they can make necessary decisions in their lives. Our informational efforts have been amply rewarded by the many people who've thanked us for "just being there".

The Council has been the only centralized source of information on the statewide housing market. Our quarterly mortgage loan reports have provided both state and "outside" agencies with the first clear and consistent picture of Alaska's housing problems. A better understanding of these problems has led to a realization that we all have a common purpose and that working together benefits everyone.

The Council began studying policy options for market stabilization by establishing regional housing task forces. Many of the recommendations offered by the task forces have already been acted upon and have had a positive effect on the housing market.

Given the magnitude of Alaska's housing problems, solutions will not come over night. It will take continued cooperation between all the players to achieve a complete housing recovery. The Alaska Housing Market Council will continue to serve the public by facilitating that cooperation with every resource available.

COUNCIL MEMBERS



Chair, Cynthia Parker



Susan Taylor Buchanan
Public Member



Ron Clarke
Office of the Governor



Carol George
Mortgage Guaranty
Insurance Corp. (MGIC)



Mike Harper
Dept. of Community
& Regional Affairs



Sam Helms
Public Member



Ron Lehr
Alaska Housing
Finance Corp. (AHFC)



Larry Merculieff
Commissioner, Commerce
& Economic Development



Ray Price
Alaska State
Building Authority



Dave Rose
Alaska Permanent Fund



Pam Throop
Public Member



Bert Wagon
Alaska Industrial Dev.
& Export Authority (AIDEA)

HOUSING MARKET STABILIZATION TASK FORCE REPORT

The Council established three regional housing task forces to make recommendations on state policies which would help stabilize the housing market in Alaska. The recommendations were made in four areas: reducing the supply of housing, increasing the demand for housing, educating market players, and decreasing delinquencies and foreclosures.

A separate task force was formed to deal with the problems of the condominium market. Their report provided the first clear picture of the problems facing condo owners and the associations that manage condo projects.

Over 200 people had the opportunity to contribute to the work of the task forces through public hearings and workshops. Many of the concerns reflected the public's desire to stay in Alaska despite problems due to unemployment and/or reduced wages. A final report was presented to Governor Cowper and the Legislature in March. Since then, progress has been made on finding solutions to the issues and recommendations raised by the Task Forces report.

Reduce Housing Supply

- Direct AHFC to fund projects that make use of institutionally owned housing for public purposes.
- Identification of projects statewide, for purposes of

demolition, should be accomplished through a cooperative effort of all state investors and the Alaska Housing Market Council.

Increase Demand For Housing

- Mortgage Loan agencies should provide clear and consistent loan guidelines which are no more restrictive than those of national, secondary investors and/or insurers.
- Alaskan residents should be able to obtain additional mortgage loans while maintaining another loan financed through a state agency (for specific cases).
- AHFC should be directed to find ways to relax owner occupancy ratios for condominiums.
- Trades of properties should be utilized, wherever feasible.
- The State should encourage, as much as possible, other participants to enter the Alaska mortgage loan market.
- Delinquency rate ceilings for state investors should be amended.

Decrease Delinquencies and Foreclosures

- Investors should provide more flexibility in, and the increased use of, modification, refinance, or forbearance plans.

- Investors should be required to provide an opportunity for borrowers to get assistance prior to the initiation of foreclosure proceedings.

- Investors should set and enforce guidelines requiring seller/servicers to provide in-state personal contact for borrowers in distress.

- Investors and mortgage insurers should help fund for, and provide early referrals to, mortgage and credit counseling programs.

- Local and state governments should encourage investors to maintain the quality of repossessed homes to protect real estate values in neighborhoods.

Educate Market Players

- The Legislature should continue to fund for the provision of information and education on housing and mortgage loan issues.

- The State should provide complete and accurate information on the status of the state housing market through regular compilation and publication of relevant data.

- The public and private sector should cooperate on a public relations campaign to educate the public on housing issues.

REGIONAL HOUSING TASK FORCES

Interior

Joe Beedle
Erma Beltz
Lucy Carlo
Audrey Foldoe
Nancy Jones
Dan Leland
Brian Rogers
Josephine Violet

Southcentral

Bob Arwezon
Rick Barrier
Fred Ferrara
Rob Gamel
Mike Hanley
Carol Jackson
Ann Marie Lindboe
Gil Lulay
Ron Moore
Kay Murphy
Cynthia Parker
Leslie Wheeler

Southeastern

Mary A. Cook
Chris Foster
Deborah Ingman
Karen King
Jerry Reinwand
Frank Seiersen
Joyce Tisch
Ron Wendte
Joe Wilson