Your Guide to Super Good Cents Construction and Sales



A Builder's Guide to Super Good Cents Construction and Sales

This Builder's Guide describes the Super Good Cents® program and the benefits available to participating builders. It explains the program standards and the typical building techniques used by Super Good Cents builders. Finally, the Guide tells how you can participate and answers many of the questions asked by builders about the Super Good Cents program.



Prepared by the OREGON STATE UNIVERSITY EXTENSION ENERGY PROGRAM for the BONNEVILLE POWER ADMINISTRATION

July 1988 Revised March 1992

A Program Worth Considering For Builders

My utility district does a fantastic job. The more you need from them, the more they'll give. They've shown me that I can do quite a bit without spending a lot of money using the techniques they've found are the most cost effective.

Bill Belshaw
William Belshaw and
Associates
Everett, Washington

Prior to attending my first seminar I thought I had a good grasp on the latest building techniques. But I came out of that first workshop completely overwhelmed by how much more there was to learn. It seems that we learn something new each session. I am looking forward to more.

Rod Street Rod Street Construction North Bend, Oregon

It gives you a definite advantage in the sales market.

Tom Booker Tomjay Construction Everett, Washington I built the first Super Good Cents subdivision in the country. I first thought that it would be a nice theme, but it developed into a sales tool. The advertising of the program has been excellent. I am looking forward to my second Super Good Cents subdivision.

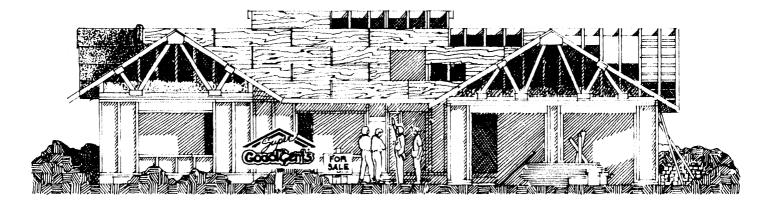
Bart Emigh Olympic Properties Edmonds, Washington

Since we started building Super Good Cents homes we've gotten out of spec homes and do only pre-sold homes, simply because we've been able to keep busy and we credit that to the program. It's made homes easier to sell.

> Mark Olsen Co-Pro, Inc. Idaho Falls, Idaho

My customers have been very enthusiastic about it and it's been good for my business. I've been in the energy-efficient housing business for a long time, in the background. Now that the demand is increasing, I'm looked upon as one of the more expert builders in the field.

Don Greene Greenewood Homes Ashland, Oregon



And Homeowners

The program is a real success from what I can see from the inside of my house.

Mike Klose Homeowner Snohomish, Washington

Our Super Good Cents home gives us even temperatures — even heat in the cold months. And once during the hot weather, our home was so cool that people thought we had our air conditioning on when we didn't. We've been in our home for one year now, and there's nothing we'd do differently.

Becky Forsman Homeowner Eugene, Oregon

No hot spots or cold spots. It is an even heat. Almost everybody remarks about the feel of it as soon as they walk into the house. There is no sign of any moisture at all.

Ray Johnson Homeowner Corvallis, Montana The house is tight, warm, not expensive to heat. I'm sold on it.

Jerry Olson Homeowner Clinton, Montana

I feel like I have my money's worth. I've had a considerable savings on my electric bill. I have a lot of envious friends. I recommend it very highly.

> Sandra Hill Homeowner Tacoma, Washington

I only spent \$80 on space heat during a very cold winter. But there are other reasons for building a Super Good Cents home besides saving money and feeling good. My energy-efficient house helps maintain the quality of the environment in the Northwest by conserving energy.

Joe Means Homeowner Philomath, Oregon



Super Good Cents Homes:

The Super Good Cents marketing program is designed to encourage energy efficiency in new electrically heated homes. The Super Good Cents program will help you build homes that sell and maintain a reputation for quality, comfort and savings.

The program offers help in selling the home and, in many cases, financial incentives. To be eligible, the home must be built in the service territory of a utility that is participating in the program. It also must be built in a manner that meets program standards.

The program is funded by the Bonneville Power Administration and your local electric utility.



The Edge In Sales

THE SUPER GOOD CENTS PROGRAM PROFITS HOMEOWNERS

- Increased comfort in a home having fewer drafts and lower heat loss.
- Proper installation of energy features that are certified by the local utility.
- Lower energy costs.
- Higher resale value.
- Healthy living environment.

THE SUPER GOOD CENTS PROGRAM PROFITS BUILDERS

Sales -

Regional and local advertising campaigns build recognition for Super Good Cents homes. Super Good Cents certificates provide valuable assurance to homebuyers of energy efficiency. Many buyers find loan qualification easier because of the expected monthly energy savings. And, in many areas, cash incentives are available for the Super Good Cents builder or homebuyer.

Increased Profits -

Consumer demand means your Super Good Cents home delivers higher selling prices and faster sales. That means higher profits.

Service -

Super Good Cents utilities are technical experts in energy-efficient new homes. Utilities provide computer analysis of expected energy performance and on-site technical assistance to help you incorporate new building techniques and find needed building supplies. Marketing expertise is available to you every step of the way.

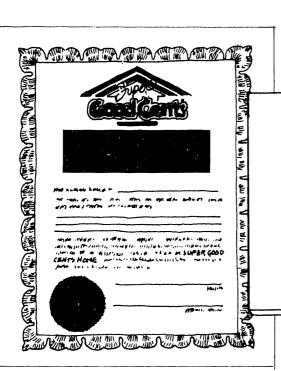
Referrals -

Super Good Cents builders are recognized for being up-to-date. They offer their customers the best and the latest in construction quality and materials. Regional and local referral networks can help you gain new satisfied customers. Your existing Super Good Cents customers will spread the word.

Builder Benefits:

Advertising and Promotion

Regional advertising directs buyers to look for homes backed by the Super Good Cents program. Many local utilities sponsor cooperative advertising with specific builders to help sell Super Good Cents homes.



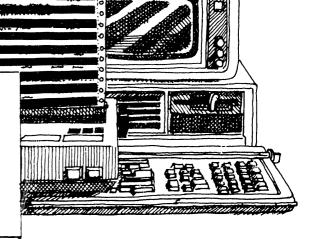
Certification

Standards for the program give the homeowner assurance of a comfortable home that will save energy dollars. The energy conservation features are documented in a certificate which is presented to the builder and homeowner and signed by the local utility. In addition, homes completed after Jan. 1, 1992 are permanently affixed with a label outlining all of the energy-saving features of the home.



Computer Analysis

Super Good Cents utilities use a special computer program to analyze the energy performance of each house. This analysis takes into account the design, orientation, and local weather conditions of your home and building site.

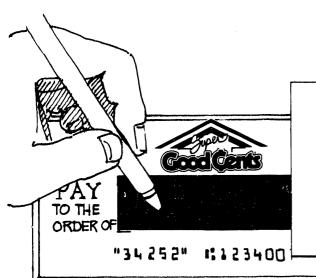


The Super Good **Cents Advantage**

Technical Assistance

Site visits, training programs, manuals, videotapes, and direct technical assistance are available for builders and homeowners. Information is presented about new products and technical innovations for building energy-efficient homes in the Northwest.





Incentives

Builders and/or homebuyers may qualify for cash incentives to help cover the cost of building a certified Super Good Cents



Flexible and Easy

It's easy to participate in the Super Good Cents program. Utility representatives will work with you to find ways to qualify the design you want to build. The standards are flexible, providing many options.



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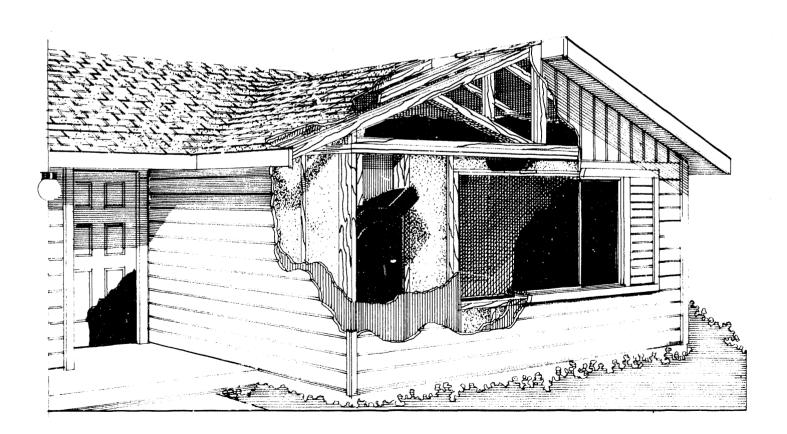


Built to Provide Comfort

A Super Good Cents home is a home with a future. It represents an investment with an assurance of quality, efficiency, and comfort. While the exact features will vary from house to house, a Super Good Cents home typically incorporates many of the following:

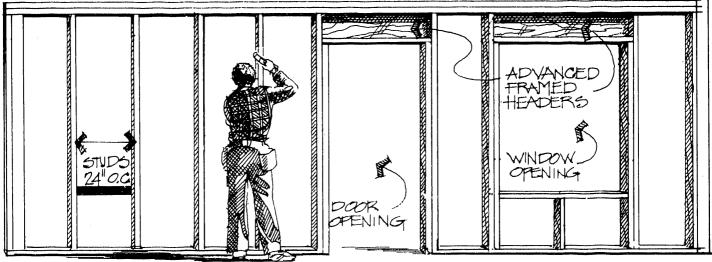
- Advanced framing techniques.
- Advanced drywall approach.
- More effective insulation in ceilings, walls, and floors.
- High quality windows and doors.
- Efficient electric heating systems.

Let's look at each of these features in detail:



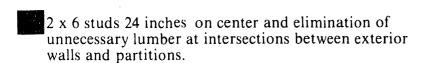
and Savings

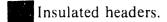
TYPICAL EXTERIOR WALL (2x6 5TUD5-24" O.C.)



Advanced Framing Techniques

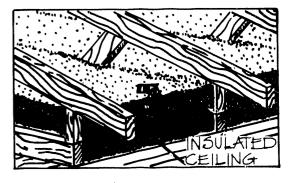
The advanced framing approach attempts to eliminate non-structural lumber and to reduce thermal bridging. With an R-value of one per inch, wood is a relatively poor insulator. Wood wall framing acts as a thermal bridge for heat loss from the inside wall to the outside. Advanced framing allows insulation to be installed in more of the shell of the building, thus decreasing heat loss. Many builders find that by incorporating advanced framing they can actually reduce their labor and material costs while getting a better bang from their insulation buck.

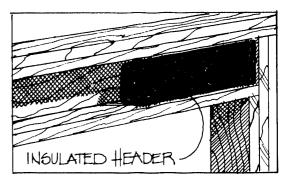


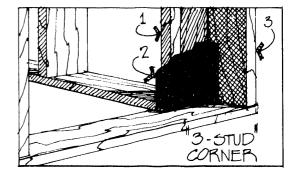


2-stud and special 3-stud corners that eliminate uninsulated corner cavities.

Ceilings constructed to allow insulation at full depth to extend over the top plates.



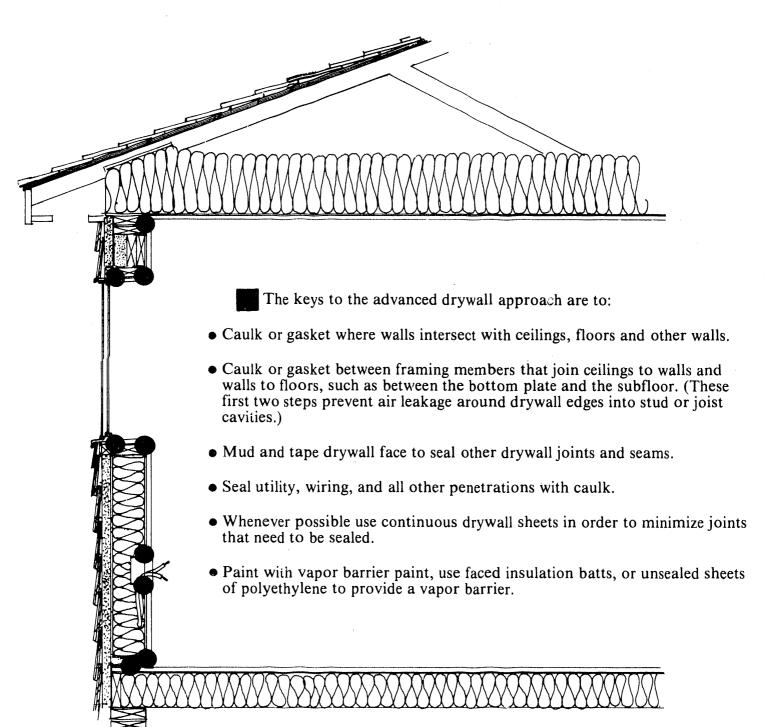




Features

Advanced Drywall Approach

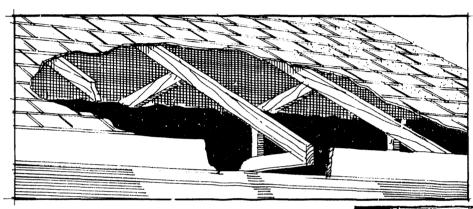
Many Super Good Cents builders are now using a technique called the "advanced drywall approach" to provide a "continuous" barrier to control air leakage. This technique links the drywall to other components of the building's envelope to form a continuous air barrier. This barrier can be easily treated to also serve as a vapor barrier.



that Make the Difference

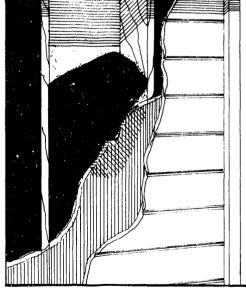
More Effective Insulation in Ceilings, Walls, and Floors

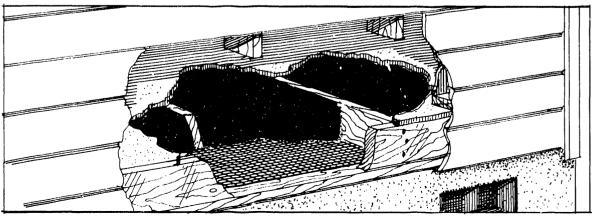
Increased insulation in ceilings, walls, and floors is an important feature of energy-efficient homes. Wall and ceiling designs in typical Super Good Cents homes provide added room for insulation, use of rigid insulation, and installation details that reduce compression and improve performance. A large number of insulation products are available.



Common features include:

- R-49 ceiling insulation.
- Exterior or interior rigid foam board applied to R-19 or R-21 walls to achieve high R-value walls.
- R-30 to R-38 under-floor insulation.



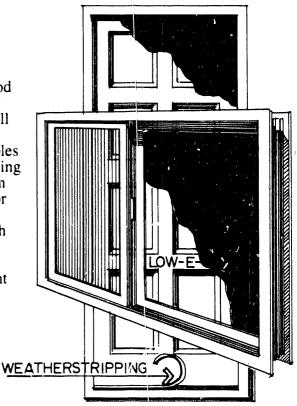


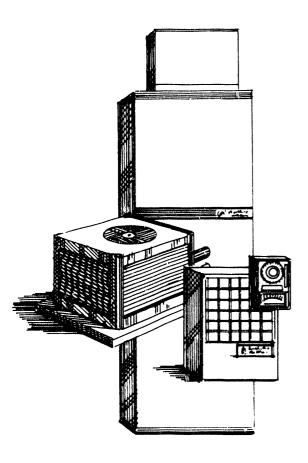
Quality Built In

High Quality Windows and Doors

Not all windows and doors are created equal. The Super Good Cents program gives you easy access to a wealth of information on the performance of specific products. It will help you choose the right window for your home from the great variety of glazing products available. Common examples of high quality windows include triple or double glass having a special heat reflective coating called low-e, filled with an inert gas such as argon or krypton, and mounted in a wood or vinyl frame to reduce heat loss. A home with high quality windows is more comfortable and has fewer problems with moisture condensation.

Typically, Super Good Cents homes also will have efficient entry doors with insulated foam cores and good weatherstripping.





Efficient Electric Heating Systems

Super Good Cents electric heating systems are clean, safe, and efficient. These affordable systems are appropriately sized for the smaller heating loads required by energy-efficient Super Good Cents homes. In many cases, this allows the builder to save by down-sizing the furnace or heat pump.

Zonal heating is another electric heating system which allows builders to save on first costs of equipment — while offering real advantages to the consumer, too. Zonal heating makes use of individual wall heaters, allowing room-to-room temperature control and heating only those rooms which need it. Super-efficient electric heat pumps are another popular Super Good Cents option.

Your Super Good Cents electric utility has a wealth of information on the best type of electric heating system for your new home — including sizing, installation, and where to obtain the equipment.

Qualifying Your Home

Super Good Cents Standards Overview

Program standards have been developed to assure all Super Good Cents homes meet three goals:

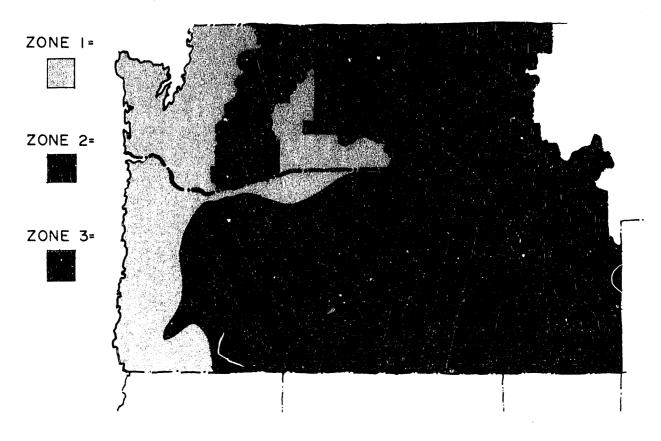
- 1. An energy-efficient building and heating system.
- 2. Low air leakage to increase comfort and to protect your investment in insulation.
- 3. A healthy indoor environment.

Meeting these goals will save the homeowner money and minimize the cost of electricity for everyone.

Goal 1: An Energy-Efficient Building and Heating System

In establishing the Super Good Cents energy standards, the cost of the different efficiency improvements was compared with the expected energy savings. Only those energy features that would save money for the homeowner and minimize the cost of electricity for everyone were chosen.

Because weather has a major impact on energy needs, it also has a major impact on the savings expected from different efficiency improvements. Homes in colder temperatures require more heat so homeowners in these areas can spend more on insulation and still save money. Given the importance of climate, the Super Good Cents energy standards divide the region into three climate zones as shown in the figure below. Consult your utility representative to determine the climate zone in which you will be building.



The Target is Flexible

Super Good Cents Tier Levels

The base case illustrated on this page represents a Super Good Cents Tier-1 home. Tier-1 homes incorporate all of the thermal measures required by the program in a particular climate zone. In climate zones 1 and 2, a home may qualify for Tier-2 Super Good Cents certification if it achieves at least 75% of the energy savings of a Tier-1 home over a home built to the 1991 Super Good Cents Standards.

The Tier-1 Super Good Cents "Base Case"

Super Good Cents energy standards are based on a list of specifications for major building components. The table below presents the reference characteristics for Super Good Cents homes built in each of the three different climate zones. Any home design can qualify if it is predicted to use no more energy than a home of similar size and location that incorporates the features described in the table below. Three methods, described on the next page, are provided to make this comparison easy. Consult your Super Good Cents utility on the best path to use to qualify your home.

TIER-1 SUPER GOOD CENTS BASE CASE SPECIFICATIONS

COMPONENT	CLIMATE ZONE		
	l	II	111
MINIMUM NOMINAL R-VLAUE: Ceiling, flat vaulted	R49 Adv. ¹ R38	R49 Adv. R38	R49 Adv. R38
Wall, above grade below grade (if interior) with an R-5 thermal break between floor and the wall and footings	R26 Adv. R21	R26 Adv. R21	R26 Adv. R21
Floor over unconditoned space Slab on grade perimeter	R30 R15	R30 R15	R38 R15
DOORS: Exterior door ² U-Value	.19	.19	.19
GLAZING (area as % of conditioned floor area): Maximum tested U-value @ 15 mph wind Maximum glazing area (% of floor) Showerhead flow @ 65 psi Duct Insulation Rigid Ducts Flexible Ducts Water Heaters 0 to 59 gallons 60 to 120 gallons	.35 15 2.5 gpm R-11 R-8 .95 EF .93 EF	.35 15 2.5 gpm R-11 R-8 .95 EF	.35 15 2.5 gpm R-11 R-8 .95 EF

¹⁻Adv. indicates advanced framing techniques. Use standard framing for multifamily structures. For more information see appropriate section in this manual.

²⁻Metal or fiberglass clad insulated doors or comparable.

Meeting the Energy Goal

There are different methods you may use to show that your design will use no more energy than the base case model and meets the Super Good Cents standards for an energy-efficient building and heating system. Your Super Good Cents utility can help you determine the best way to qualify your home. Your utility also can provide you with a complete copy of the most recent standards.

Component Prescriptive Options

Your utility may have one or more prescriptive options that achieve energy savings equivalent to the savings of the "base case".

Energy Budgets

Use a computer to simulate the performance of your design. First, a "target" or maximum heating budget is generated for your home by calculating the space heating energy needed by a home similar to your design, but using components as specified for the base case. To determine if your home meets this goal, its energy use is predicted using the same computer model and the result is compared with the "target." Any strategy that will meet this "target" will qualify for the program. This provides

tremendous flexibility in designing Super Good Cents homes, and since your utility representative will provide the computer and run it, it is easy.

Thermal Performance

Determine the heat loss of the walls, floors, and ceilings. A "target" or maximum value is calculated for a home which has your design and components as specified in the "base case." A second value is computed based on the actual components desired in your home. If the predicted heat loss for the components you want to use is equal to or less than the target, your home will meet the Super Good Cents energy standard. Your utility representative will be invaluable in helping run these calculations for the specific structure you plan to build.



Comfort, Performance

Goal 2: Low Air Leakage

Controlling air leakage is important in creating a comfortable, energy-efficient home. It protects your investment in insulation by preventing energy loss from unwanted airleaks. And it protects the structural integrity of the house by keeping warm, moist indoor air from entering and condensing in walls and ceilings.

The Super Good Cents specifications allow for two degrees of tightness. The first level seeks an average air exchange rate of roughly one change of air within the home every three hours. Compliance can be demonstrated through testing once the house is complete or by following a list of specific measures outlined in the standards. Specified measures include caulking rough openings and other penetrations in the building envelope; using windows and doors having tested infiltration rates below specified amounts; and taking measures to control air loss through fireplaces, woodstoves, and exhaust systems.

The second level seeks an average air exchange rate of one change of air within the home every ten hours. Again, compliance can be demonstrated by testing the completed house, or by following a list of measures specified in the standards. Specified measures include all the measures identified in the first level plus a continuous air barrier and even better windows and doors.

Goal 3: Healthy Indoor Environment

All homes contain sources of indoor air pollutants. Super Good Cents standards specify a number of provisions to help promote a healthy indoor environment.

First, sources of pollutants are minimized. Low formaldehyde products are specified for use. Combustion appliances are required to have tight-fitting doors and air supplied directly to the fire box to minimize back-drafting of combustion byproducts. Super Good Cents homes typically include measures for removing radon, if present, before it can enter the living space. Free radon monitoring is available to be sure that a radon problem does not exist.

Second, all Super Good Cents homes have a controlled mechanical ventilation system built in. This system provides fresh air directly to bedrooms and living areas. It assures better ventilation than in

conventional homes by eliminating stagnant air conditions. The Super Good Cents standards follow the recommendations of the American Society of Heating, Refrigeration, and Airconditioning Engineers (ASHRAE). These standards require spot ventilation capable of removing 100 and 50 cubic feet of air per minute from kitchens and bathrooms, respectively. Whole house ventilation sized to provide a minimum of 30 cubic feet per minute of fresh air to the master bedroom and 15 cubic feet per minute for the other bedrooms and 15 cabic feet per minute for the main living area. Standards are met by including exhaust fans, make-up air and controls in your homes that are appropriately designed, sized, and installed.

One of four general design options are used to achieve this whole house and spot ventilation capacity:

- Kitchen and bathroom exhaust fans sized and controlled to provide both spot ventilation and whole house ventilation. (This basic option is illustrated on the following page.)
- A ducted ventilation system using a centralized, large exhaust fan to provide both whole house and spot ventilation in kitchens and bathrooms.
- Independent systems that use one centralized exhaust fan to provide whole house ventilation along with separate fans in the kitchens and bathrooms.
- Furnace based systems that combine the whole house ventilation with a forced air furnace.

All the options require whole house fans that operate below specified noise levels and are controlled automatically either by humidistat or clock timertype controls. Each option also requires a means of providing fresh air to the living areas of the home.

Some Super Good Cents builders are using exhaust air fans equipped with heat exchangers that recover heat from the outgoing air. These devices, called heat recovery ventilators, use heat from the outgoing air to warm the incoming air. When added to a home that already meets program energy standards, additional incentives may be available to help with the cost.

and a Healthy Environment

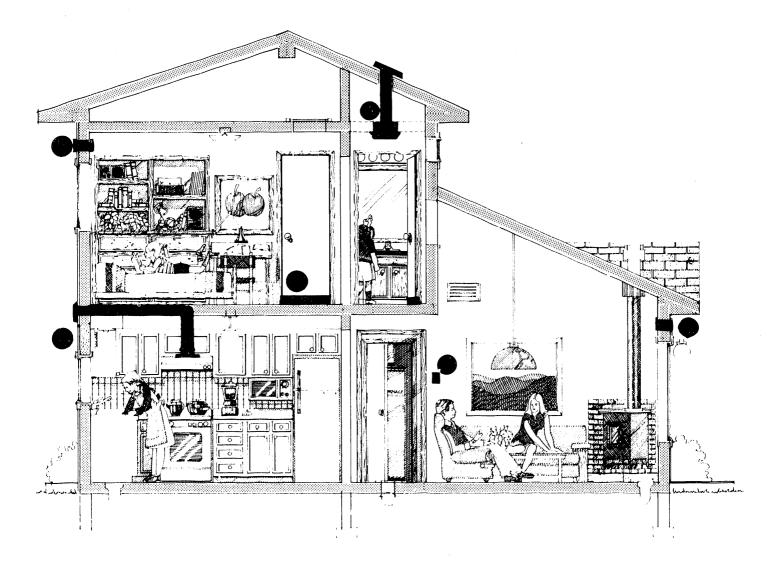
Integrated Spot and Whole House Ventilation: One of Many Options

Key Features:

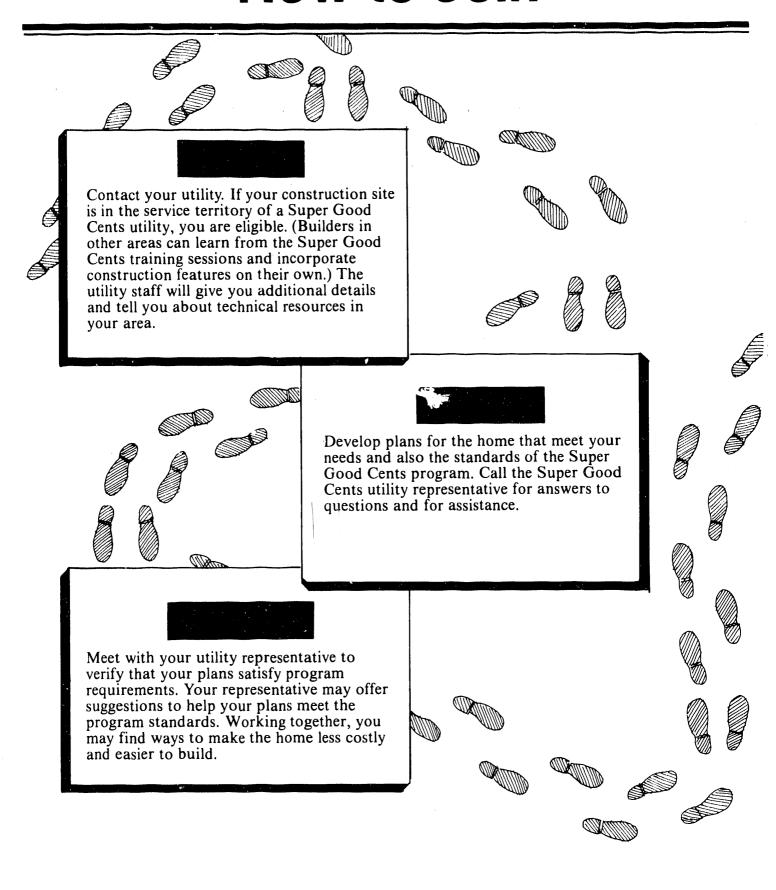
Fresh air inlets Undercut doors to allow air circulation throughout the house

Clock timer

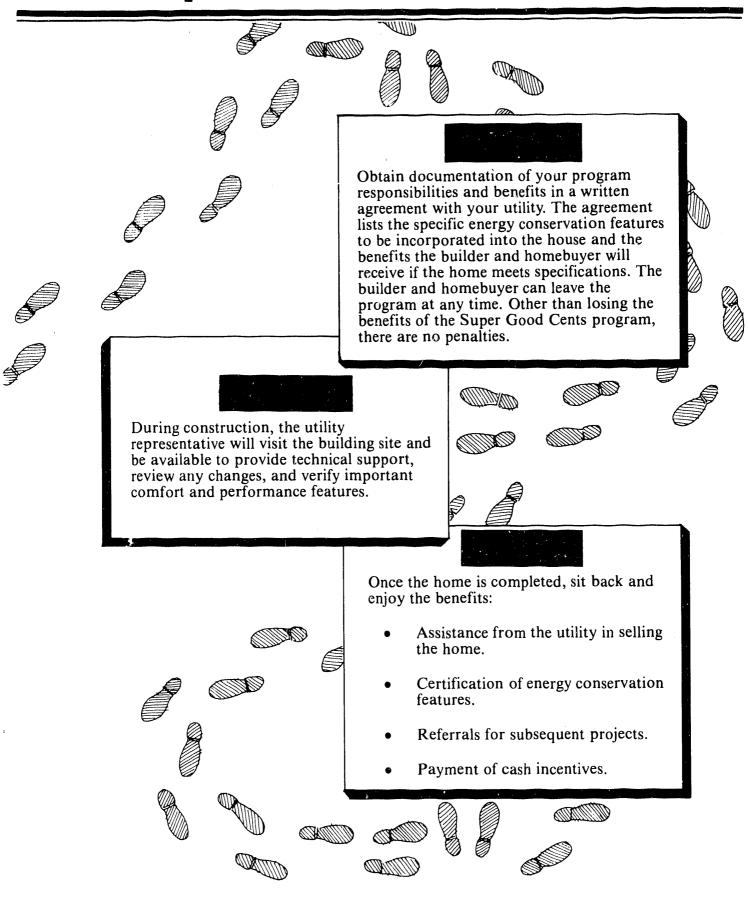
Properly sized exhaust fans in the kitchen and bathrooms



How to Join



the Super Good Cents Team



Questions and Answers

Does energy efficiency help sell homes?

Yes. A recent Northwest survey found that 64 percent of the consumers classified energy efficiency as very important when considering a new home. An additional 25 percent listed it as somewhat important. In response to an open-ended question on the most important feature influencing new home selection, energy-saving features ranked fourth at 3.3 percent. Quality of construction was third (5.5 percent); home design and floor plan, second (30.7 percent); and neighborhood was first (52.3 percent). Energy features may very likely determine which of two homes, comparable in neighborhood and attractiveness, will sell.

Is this program just for the highly innovative, custom builder?

No. So far some 5,000 builders and shelter industry members throughout the BPA service territory have participated in Super Good Cents training. Many of the Super Good Cents homes built by these builders represent energy-efficient versions of their regularly used house plans. Today, complete Super Good Cents subdivisions can be found throughout the Northwest, from the Seattle area, to Spokane, to Ashland.

Why raise the Super Good Cents standards?

The Northwest has a limited amount of available electrical energy—and demand will only continue to increase. In order to forestall building new expensive generation, the Northwest Power Planning Council's Energy Plan for the region requires that conservation be developed to its fullest extent.

The Super Good Cents program is essentially code now in Washington and Oregon. BPA has determined that building to even higher energy standards is cost-effective to the region and saves additional electrical energy that otherwise would need to be generated by new power plants.

BPA and utilities will make adjustments to the Super Good Cents program as long as measures are economical for the region.

Will the new Super Good Cents standards make homes more expensive to buy?

Utilities will make payments to builders or consumers to offset the costs of going beyond code. The incentives should more than make up for the difference. Thus the homes are no more expensive to buy than code homes. Energy bill savings also will make the homes less expensive to live in.

Are consumers really aware of the Super Good Cents program?

Yes. Recent surveys show that 61 percent of the potential homebuyers in the service area of participating Super Good Cents utilities now are aware of the program. Of the homebuyers who are familiar with the program, 36 percent indicated they very likely will seek out a Super Good Cents home when looking for a new home.

Is a Super Good Cents home a particular style of home?

No. The program standards are written in a manner that permits any home design to meet the energy standards and qualify for the program.

Questions and Answers

Will building a Super Good Cents home delay construction?

It shouldn't; however, it depends both on the builder and the utility. Utilities participating in the Super Good Cents program are very aware of the importance of time and scheduling. Their goal is to work cooperatively with the builder to make the project a success and to minimize potential delays. Often the extra up-front planning actually can shorten the time required for completing the project.

If I build a Super Good Cents home, do I have to install a heat recovery ventilator?

No. Heat recovery ventilators are only one of a number of possible methods for providing home ventilation. If you choose to go beyond the required energy standards by including heat recovery equipment, an added payment is available to help with the extra cost. See your utility representative for details.

Do Super Good Cents homes have to be restricted in window area?

Some ways of qualifying the home such as use of the pre-certified options do impose a limit on window area. But other methods are provided which test whether a home, regardless of window area, will qualify. In fact, if the home is properly designed and the windows face south, they may provide a net heat gain and actually help the home qualify.

Are multifamily buildings and manufactured homes eligible for the Super Good Cents program?

Yes. Different requirements and incentive levels are specified in the Super Good Cents

standards for multifamily buildings and manufactured homes. Further information and assistance in qualifying multifamily buildings is available from your Super Good Cents utility representative.

How many utilities are participating in the Super Good Cents program?

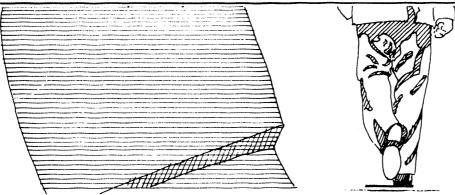
In 1992, 113 utilities were participating. The number of participating utilities has increased each year since the program began.

How much energy are these homes saving for the region?

As of December 1991, 32,000 homes had been built to Super Good Cents standards. The combined energy savings from these homes has been enough to power a city of 8,000 for 70 years. Another way of looking at the savings is that over their 70-year lifetime, these 32,000 homes could power a city of 560,000 for one year. The new program will save approximately 1,740 kilowatt-hours annually per home.

The region is looking toward the Super Good Cents Program and other residential, commercial, industrial and agricultural conservation programs to save some 1,300 megawatts of power by the year 2010. Your utility representatives will work with you to calculate the anticipated savings for your house if built to the Super Good Cents standards and compare it to the same home built to the existing building code. This will vary by location, design, and lifestyle. Check it out, then decide.

The Next Step



Contact Your Utility Representative Before You Build

Check out the Super Good Cents program. You and your utility representative may form a winning team. Working together, you will gain:

- 1. Up-to-date product and technical information.
- 2. Help in selling your Super Good Cents home.
- 3. Certified high quality for the builder and the buyer.

Your Super Good Cents utility will work with you to qualify your house plans for the Super Good Cents program. The utility representatives will meet you at your construction site to answer any questions, incorporate changes, and to verify energy-saving features. And finally, once the home is completed, will work with you to help sell your home.

Now that's a step in the right direction!



Notes

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