



Fig. 26

Move in date:	<b>winter 1993</b>
Location:	<b>Ljungarum 4 km S of Jönköping</b>
Project initiators:	<b>political initiation</b>
Size:	<b>24 households</b>

## S M E D E N

Look up. That is the very first thing I did when I entered a house in Smeden. The architects were emphatic about the importance of an attractive home for quality of life. The entry has a gabled ceiling and a glass wall. The living room and kitchen have a two story ceiling which you can look down onto from the second floor. The spring sun, still low in the sky, shone through the windows and was most welcome. Large overhangs over the windows shade the house from the sun's rays when it travels higher in the summer sky.

I was glad to finally arrive at Smeden. The site lies just outside of the map sent out by the tourist office and the bus map is a jumble of colored lines, a few street names and no map. I took a lucky guess and called my host to double check. What a relief it was to find her waiting for me at the bus stop. It is only a short walk to Smeden from the bus route but the pathway is

a circuitous walk not on the map. With home-made cinnamon rolls my hosts lured several others to come join in our discussion. We discussed difficulties with the heating, ventilation and toilet systems. When it came to the interior architecture of the houses, however, the endorsement was clear. Before the architects joined the planning discussions there was a lot of debate in the planning about the floor plan, but as soon as the architects showed their proposed plan it was unanimous, "That's what we want." (get exact quote) While cleaning up from coffee I noticed a large collection of children's drawings on the refrigerator, but I had not seen any of the tell tale signs of young children in their house. My host, when asked about the artist of the drawings, replied, "*The children in Smeden have many parents, and the parents have many children. We never want for contact with children.*"



Fig. 27 - Livingroom/kitchen flooded with light

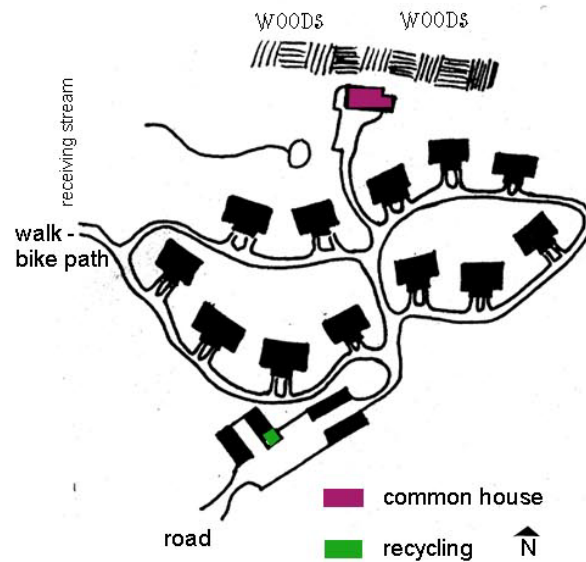
## Smeden - Getting there

Smeden was initiated by politicians, but it was a small group of die-hard individuals and a pair of architects who saw the project through. In 1998 the Center party (*Centerpartiet*) made a motion to increase attention to ecological principles in building. Jönköpings planning commission, as a result, inquired about the interest to live in an ecovillage with those on the city's waiting list to buy a home (*tomtkön*). Eighty-one families expressed their interest, and those families were just from the housing list. In May of 1990 the office of the planning commission invited these families to an informational meeting. The city proved supportive, at least, administratively, throughout the process. Sixteen families decided to delve into the planning process after the informational meeting. These families sought out other interested families, bringing the number of participating families up to thirty.

The families divided into groups and delved into creating a list of fifty specifications for the project. The points were very detailed. For example: triple glazed windows, gardening space no less than 100 m<sup>2</sup> per family, houses placed far enough apart so that they do not shade each other even when the winter sun is no higher than 8° over the horizon. The group did their homework, and did it well. This list laid the ground work for all future plans.



Fig. 28 - Livingroom



The time came for interested families to invest in hiring an architect. Just a few families were prepared to make the necessary financial commitment. The group did not want to hand over their project to a contractor who would be free to make whatever changes they wanted. An article about the project was printed in the local paper. It attracted the attention of the architects of Arkitektrådet AB, Jan Moeschlin and Peo Oskarsson, who agreed to receive payment upon completion of the project. Sixteen families agreed to go forward.

The architects were not especially versed in ecological housing, but they had built many homes in close consultation with the future owners. The architects wanted to hear what the new home owner's had to say. The architects also had experience in working as the project leader and developer in building projects. This reduced the number of "chef's in the kitchen," so to speak.

Finding a builder, within the proposed budget proved to be problematic. Not as many builders bid on the project as was hoped which reduced the pool of choices. Once market prices were attached to the plans changes were necessary to stay within the allowed budget. Some

of the changes made for financial reasons compromised environmental considerations. Extremely high interest rates for loans at the time made the financial woes even greater. Several families left the group during this time. The remaining families recruited others to join once the footing for the project was solid again.

The builder finally chosen was Mjögäcks AB. The owner of Mjögäcks was very interested in ecological housing such as Smeden. The builder worked under a steered total contract. The first house was finished in December 1993. In 1994 the architects were awarded city building prize in 1994 for good ecocycle design.

### **Smeden - Location**

Smeden is located in Jönköping, a mid-sized city in southern central Sweden, population 110,000. Smeden is located in the residential suburb Ljungarum, formally the Ljungarum parish, established in the 12<sup>th</sup> century.

Easy access to the city and services was of paramount importance to members involved in planning. Smeden is less than two blocks from a district shopping center, where you will find: a grocery store, hair salon, newsstand, postal services and a recycling center. Two bus routes, running twice an hour, pass by the shopping area, just a five minute walk from Smeden. The elementary school is just around the corner, so to speak. A walking/biking path runs to the middle and high schools. The center of the city of Jönköping is just twenty minutes away by bicycle. The adults walk, bike, bus and drive to work.

Even though Smeden lies just meters away from other residential areas, it is easy, when there, to forget how close you are to the city. The houses are built on a hill, with tall trees on three sides. One of these clusters of trees marks the edge of a nature preserve. A road passes right in front of the area but it is not visible over



Fig. 29 - North side is sheltered. Retention pond in foreground.

the rise between the houses and the road.

### **Smeden - Design**

Children were running around a somewhat melted snowman in a centrally located playground when we strolled around to look at the site. Gravel pathways loop around in two large side by side ovals. Twelve duplexes line the ovals with their glassed-in entries facing south. The houses wear the traditional colors of the region, Småland, copper red paint with yellow trim. A small path leads from the houses towards a nearby grocery store and bus stop. The parking lot and garages lie on the south end of the site by the main road. Near the garages are two long low buildings containing storage space for each house and the trash and recycling rooms. At the north end of the site lies the common house. A day care was run at the commonhouse, but when the lease was up the residents decided to try having the commonhouse to themselves for a while. The commonhouse contains a small laundry room, for large bulky items, a sauna, a meeting room, and a small kitchen. Behind the commonhouse lie expansive gardens. In March there are already signs of residents preparing their plots for the spring season. We took a short walk into the woods, a nature reservation adjacent

to the ecovillage. The woods are a frequent destination for residents.

Between the houses and the gardens I discovered several ducks swimming in a small pond. The pond, it turns out, is the retention pond for gray water from the houses. A small constructed stream meanders downhill from the pond to the receiving stream. Residents of Solbyn do not forget where their water comes from or where it goes after they have used it. Tap water comes from their own 115m well and the walking path to a nearby store passes right over the receiving stream. Three-fourths of the respondents to the survey made a point of listing their on-site waste water treatment system as one of the most successful ecological measures in the ecovillage. Smeden is the first multiple household development in Sweden to install urine separating toilets. Despite some initial problems resulting from errors in installation the system works well.

You won't have any need for shoes inside in Smeden. Your feet will be warmed by the heating elements under the wooden and ceramic tile floors. The living room is graced by the presence of a common fixture of Swedish homes, a large, wood burning, ceramic stove. The ceramic stove is has an extra layer of copper pipes under the surface. Water is pumped through these pipes to gain heat from the stove. The hot water is then piped to an accumulator tank. Seven and a half square meters of solar panels and a back up electric furnace are also connected to the accumulator tank.

The houses in Smeden are a treat to visit in: a large sunny glassed in entry, warm pine floors, a wide swath of windows, inviting cream colored walls finished with a beeswax milk paint, and an open floor plan. The houses are designed to have a light and airy feeling. The ceiling in the living room and kitchen start at normal

height by the front door and slant upwards to end at the top of the second floor. The architects explain this design “creates a good visual contact between floors. Especially valued by the children who like to stand on the second floor and “have contact with what is going on below” (Moeschlin, Oskarsson 19).

### **Smeden - Social and organization**

The sections on the social aspects of the ecovillages will become more brief as I go along. All the projects experience a positive social atmosphere to a greater or lesser degree. All the projects have similar resident administration.

I had a very positive experience in Smeden. The residents I met with clearly care about the welfare of others in Smeden. Disagreements and bickering inherent in a group making decisions does not seem to detract from the overall positive experience. Maintenance is performed by residents divided into work groups. Administration is carried out by the residents and managed by a board elected from and by the residents. The commonhouse had been a hub of activity when the daycare was there. Now things have quieted down a bit.

### **Smeden - Resources**

Smeden received a lot of press. The local daily paper ran more than twenty articles about Smeden. Special interest magazines and national newspapers ran stories about Smeden as well. The following three citations provide a comprehensive overview of Smeden. One additional source on Smeden's toilet systems is cited in the Design chapter.

The discussion on “Getting there” is exceptionally long in this case due to the excellent information provided by the architects, Jan Moeschlin and Peo Oskarsson, in their book *Smeden - ekologiskt byggande med brukarplanering* (*Smeden- ecological building with*

the user's input). This book describes each crucial step in the process of planning Smeden and the positive and negative sides of these steps. It is frank and informative account.

“Brf Smeden - sex års slit bakom ekobyngs idylliska fasad” (Home Owner's Association Smeden - six years work behind the ecovillage's idyllic facade), *Correspondenten*. September 26, 1995, A10. This newspaper article, written by Inga Wallenquist is chock full of technical descriptions

of the ecovillage.

“Tionde Ekobyng Klar för Inflyttning!” (The tenth ecovillage is finished) in the newsletter for Njord, *Eko-Njord* (2-93), written by Lotta Lanne, summarizes the creation and design of Smeden. Lanne's has an excellent writing style again proves to entice and inform the reader. Lanne has written numerous articles about ecovillages and ecological building.

## Smeden - Overview

Planning start:	winter 1988	Number of Households:	24 households, circa 70 people
Move in date:	winter 1993	Size of homes:	8 at 81m <sup>2</sup> , 2 rooms 12 at 117 m <sup>2</sup> , 4 rooms 4 at 137 m <sup>2</sup> , 6 rooms also 13 m <sup>2</sup> glass veranda on all home owner's association architects
Location:	Ljungarum 4 km S of Jonkoping	Type of ownership:	home owner's association
Project initiators:	politicians	Project developers:	architects
Project leader:	Arkitektradet AB	Builder:	Mjobacks Entreprenad AB steered total contractor
Architect:	Jan Moeschlin, Peo Oskarsson	Building cost:	7,500 SEK/m <sup>2</sup> at 1995 prices
Landscape architect:	architects		
<b>S I T E</b>			
Location:	walking distance of stores and schools, forest with paths adjacent to site		
Transportation:	two bus lines run regularly to city center - bus stop one block away, 20 minute bike ride to center of town		
Design:	total area of site: 38,500 m <sup>2</sup> 12 duplexes arranged in two adjacent irregular ovals foot path to road with bus lines and food store parking on south side, two long garages - one space for each house extra building by garages for storage/trash/recycling common house on far side from parking by pond and gardens play areas in center of houses, ball field on south side		
Landscaping:	little original landscaping, residents adding bushes, some trees drainage problems and poor soil make planting difficult flower beds and other foliage planted next to residents' homes		
Gardens:	200 m <sup>2</sup> garden space for each household		
compost:	household compost near houses, yard waste in garden, individual compost - not collective		
food storage:	pantry and small cellar that can be used for cool storage		
Common house:	145 m <sup>2</sup> a small kitchen, guest room, sauna and space for large laundry items		
additional buildings:	garage - one 15m <sup>2</sup> per household, connected garages - in four sets - garages include extra space for trash/recycling room and some storage		

House exterior:	cooper red wash on wooden siding with yellow trim (linseed oil paint) yellow trim pieces on corners of houses and around all window panes in the glassed in entry red cement tile roof
<b>INTERIOR</b>	
Floor plan:	living room and kitchen and glassed-in porch on south side: bedrooms, pantry, utility room, storage, and cellar on north side. High vaulted ceilings in kitchen and living room. Some have second story rooms over kitchen
Foundation:	insulated crawl space, with reduced foundation depth
Frame:	wood
Insulation:	eco-fiber: foundation - 22 cm, outer walls - 24cm (no plastic diffusion layer), attic - 52cm, rockwool in separating wall between duplexes
Floors:	living room & kitchen -soaped pine floor;other rooms -linoleum floor; plastic mat in bathroom
Walls:	interior walls treated with beeswax milk paint over a microlite weave; ceramic tiles on wall in bathroom
Woodwork:	oiled beech and pine, all trim natural wood, natural wood interior doors
Windows:	triple glazed with low emissive coating on innermost glazing, double glazing in glass room extra long windows and a high half round window on side wall in living room, window sills angled 10 to let in more light
Glass rooms:	13 m2, unheated, wooden frame, double glazed windows, clinkers on the floor, 9.5 cm insulation
Kitchen:	standard, recycling under sink
<b>SYSTEMS</b>	
Heating:	heating elements under floor, individual heating systems: ceramic stove with water mantle, 7.5 m2 solar panels, back-up electric furnace - attached to 500 L accumulator tank
Ventilation:	thermostat regulated intake thru vents in walls, backed up by thermostat controlled fan in attic, outflow channel in attic
Water:	tap water from 115 m well
gray water:	three chambered settling tank (15m3), to biological reator (Bioclere), to settling tank, to resevoir (water from here used to water gardens), to constructed stream, to recipient
black water:	urine separating toilets(Dubbletten, WM-toaletten) with Aquatron, water separated from feces by centrifuge (Aquatron), compost used in flower beds, water to gray water treatment, urine to tanks (30 m3 each) picked up by farmer
Electricity:	standard
Trash/Recycling:	trash/recycling space by garages, picked up by city, indoor recycling containers under sink