Fig. 30 - overview, common house in center

Move in date:	**spring 1995**
Location:	**2 km NE of Kronoparken8 km NE of Karlstad**
Project initiators:	**future residents**
Size:	**18 households**

M J Ö L N A R T O R P E T

Like a spider in its web, the common house sits in the center of a circle of nine duplexes in Mjölnartorpet. The placement of the buildings reflects the planners' desire to foster positive contact between neighbors. Children are playing in the center of the web, on a wide grassy field, under the watchful eyes of many parents. Many people are outside, despite a chill in the air. One gentleman outside painting furniture takes a moment to greet me and pose for a picture. A three year-old runs by sharing multiple hellos. Her father soon follows, offering words of encouragement on my project. My host refuses to let me try my hand at camping in the nearby woods and insists I stay in the common house and join his family for breakfast.

Karlstad is now the home of two ecovillages, Tuggelite and Mjölnartorpet. Mjölnartorpet is by no means a carbon copy of Tuggelite. A comparison of the two clearly reveals the trend in ecovillage planning to "look further at the greater whole." In the design of Tuggelite, energy conservation was the primary focus. Later, in planning Mjölnartorpet, "energy conservation, in of itself, is not seen as important and one pays more attention to other values. Aesthetic and social aspects were weighed in and one emphasized other things, such as, the significance of which food one eats and not taking the car to work," observes Lotta Lanne, an architect who specializes in ecological design. [Hardestam]

Getting there - Mjölnartorpet

After Tuggelite was built, citizens of Karlstad began to dream of another ecovillage. The association for ecovillage SOLA (now Mjölnartorpet), was organized in the fall of 1990. The group broke into study circles to learn more about ecological housing. Simultaneously discussions were begun with city to find a suitable home for the project. The apprehension shown by Karlstad city officials to Tuggelite had faded by the time the new association approached the planning commission. Within a year a site was proposed. The city helped to secure a sixty percent reduction in the price of the land.

The members were actively involved in the planning process. They broke into nine groups to work out different details of the plans. The architect, Gunnar Persson, spent countless hours on the project. Persson had a personal investment in ensuring the members got what they wanted at an affordable price because he would be living in Mjölnartorpet too. Having an architect with such a great personal investment in the project has its pros and cons. Because he was designing his future home, as well as others', he had a greater stake in designing according to his own preferences, than he might have in another project. However, the value of his dedication far outweighed the drawbacks. An outside

architect could not have produced similar results without much greater costs. Mjölnartorpet was being planned at a very bad time for the building industry. Prices and interest rates were uncertain. Persson, in cooperation with other members, was able to come up with a project with flexible floor plans, and high quality materials, at an affordable price - lower than comparable newly built housing at that time. A great savings was achieved through having the residents do much of the finishing work themselves, such as: painting/papering the walls and ceilings, painting outside, finishing the woodwork, and landscaping.

The group chose to fill the role of developer themselves, giving them more control over the building, but more responsibility if something went awry. In March 1993, the group sent out bids for builders. Ten of nineteen builders responded with bids. Meetings were held with the four builders who expressed greatest interest. Solstahus presented the best offer and appeared most willing to work with, not against, the members interests. Home owner's association, Ecovillage Mjölnartorpet, was established in the fall of 1993. The establishment of the home owner's association made it easier to secure a loan. The loaning bank was very supportive, which proved invaluable later.

The first six houses were built, and two families had moved in, by April of 1994. Unbeknownst to the members, the builder, Solstahus, had been having financial troubles with projects in Germany. Solstahus declared bankruptcy on April 6, 1995. Fast work was made of finding another builder to finish the work. By April 24th, PEAB was contracted to finish the project. Thanks to the support of the loaning bank, Sparbanken, the extra costs incurred from the bankruptcy of Solstahus were covered by building insurance. By the end of September the new residents of Mjölnartorpet were able to join together in the common house to celebrate the completion of the project with organic beer and video tapes from the building process.

Despite the crisis, Mjölnartorpet had a happy ending, but the experience did shake up the residents. Over half of the respondents to the survey specifically noted the bankruptcy of the builder. One resident remarked, *"Choosing the right company is very important. It shouldn't be too cheep or else you risk bankruptcy."* The emphasis on savings did play a part in choosing Solstahus, but that is not the whole picture. Soltsahus expressed a greater interest in collaboration with the residents than any other contractor. ~~~quote~~~.

Location - Mjölnartorpet

Mjölnartorpet is located in a field that has been used for grazing for centuries, and most recently used for community gardens. The garden plots I passed on

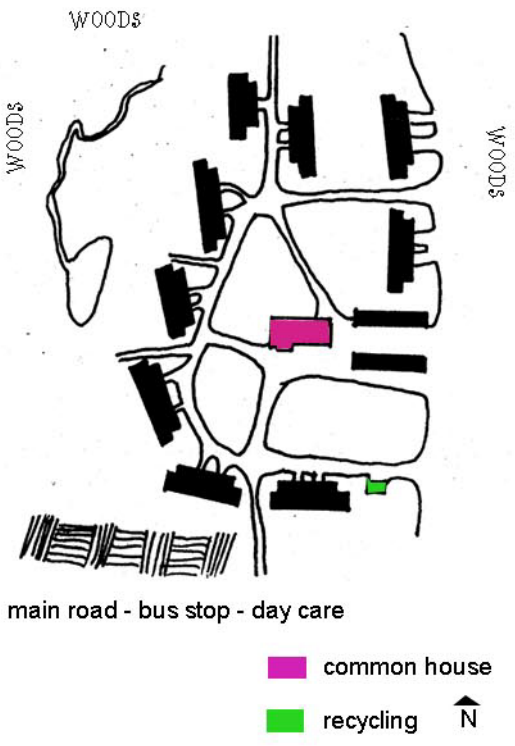


Fig. 31 - Main room in commonhouse

the way in seemed to be reaping good results. The houses are surrounded on three sides by woods, the fourth, by residential housing. The location of the houses provides a sense of living in the country, while still being within walking distance of schools, stores, a daycare, and two bus lines. The houses are located in a small valley. The nearby houses are barely visible over the ridge between. Beavers have been seen in the nearby stream, and a moose was even seen one morning standing in the middle of the houses.

The city bus stops in front of a daycare, which is less than a block from the houses. A wide range of services are located within walking distance: a university (1.2km), a hospital and pharmacy (1.7 km), grocery store, post office, bank, and schools (no more than 2 km).

Design - Mjölnartorpet

Off the main street a gravel road loops in front of the south side of the houses and around to the eastern side of the site. The gardens lie on the south side between the gravel road and the houses. A walkway runs between the gardens to the houses for pedestrians, the eastern part of the road leads to the two rows garages. The garages are located just east of the common house. The nine duplexes are arranged in an oval around the common house. The promotion of positive social interaction between neighbors bore more weight in planning the site than maximum sun exposure, therefore the houses sit at varying angles, facing one another, instead of lined up to salute the sun. The front entrance of five of the duplexes look directly onto the common house and a wide lawn and play areas. The other four duplexes complete the oval, but their front entrances are slightly more secluded. The houses have clearly defined, backs and fronts. I saw few signs, such as bushes or fences, defining people's yards. Although this may change, *"Some want open and discrete boarders, while others want high bushes or fences."* For now, it seems people respect the distinction between public and private space without fences.

The main components of the waste water treatment system are located in plain view. The settling tank, urine tank, and biological reactor are buried in the ground, but the lids to them are visible next to the common house. The final reservoir for the water, before entering the nearby stream, is located on the western side of the site. The current system does not work optimally in the winter. Options for improvement of the current system are being discussed. (see Design chapter) The houses have urine separating toilets.

The design of the houses reflects a traditional 1800's cottage. The wooden siding is finished with the traditional copper red wash and the window sills and other trim are finished with a white linseed oil paint. The front entrance has a small covered (but not enclosed) porch. Some have chosen to build an open, or closed, back patio. Inside, the houses are warm and welcoming with an abundance of natural wood, warm colored walls, and an open kitchen - livingroom plan. Great care was taken to design a home that was

Fig. 32 - Garages off commonhouse

pleasant and healthy to be in. The first floor bathroom is cozy. The tile floor is heated by warm water running through pipes underneath. The shell of all the houses is the same size which simplified planning. The number of rooms per house varies according to how much of the second floor is finished. The houses with greater floor space, a full second floor, have finished all of the attic space, dormer windows are added to the second floor rooms. The most common size is one and a half stories. The kitchen is outfitted with energy efficient appliances and a pantry.

The houses are heated by district heat. The common house has a pellets furnace and 81 m^2 of solar panels (and a back-up electric furnace). The heat is stored in a large accumulator tank and distributed to the houses via culverts.

Social and Organization - Mjölnartorpet

Nearly all of the families now living in Mjölnartorpet were involved, to some degree, in planning the project. Participation in planning laid the groundwork for the current positive social sphere. *"We lived through the good and the bad together even before moving in,"* and, *"…got to see what a complicated composition of individuals we are."*

The common house is both a visual and social focal point for the residents. Residents meet in the commonhouse for coffee, meetings, parties, pub nights, to play games, attend workshops, relax in the sauna, or to do their laundry. Residents had the option to install washing machines in their homes, but several have chosen not to. At least eight families, according to my survey, use the laundry facilities in the commonhouse on a regular basis.

Maintenance of Mjölnartorpet is similar to all the other ecovillages. Responsibilities are divided among workgroups. A steering committee, comprised of residents elected by residents, meets often and large meetings are held less often.

Resources - Mjölnartorpet

Numerous newspaper articles were written about Mjölnartorpet, but it is mentioned in few other published sources.

The most valuable resources for the above information, aside from the site visit and interviews, is information written by the residents. The architect wrote a detailed description of the technical aspects of the houses and systems and brief descriptions of the reasons behind some of these aspects (Projektbeskrivning, January, 7, 1996). Anders Claesson wrote a four page history of the planning of Mjölnartorpet (October 15, 1995), and at least one article on the waste water treatment system ("Ekobyn Mjölnartorpet," *VAV - Nytt*, April 1996. Page 16.) Anders Magnusson has run tests on the waste water treatment system and created a list of proposed improvements for the system. He wrote an extensive report of his findings which may be published at some point. The current title for Magnusson's report is *Om Avloppssytemet vid Mjölnartorpets Ekoby*.

The two best articles I found were:

Hardestam, Cecilia. "Karlstad - ett eldorado för ekoboende,"

NWT, January 20, 1996. In *Helg Magasinet.* The article compares Tuggelite and Mjölnartorpet and describes each project. It describes how ecovillages have changed and developed and highlights a few social aspects.

Westmar, Bo. "Nya generation ekologiska byar," *Dagens Nyheter*, October 22, 1996. The third of a three part series on ecological housing in one of Sweden's largest newspapers. The article describes the differences between Tuggelite and Mjölnartorpet. Another small article on the same page describes fifteen ecovillages in brief.

Mjölnartorpet - Overview

Planning start:	fall 1990	Number of Households:	18 households, circa 70 people
Move in date:	summer 1994	Size of homes:	2 at 65.4 m2, two rooms
Location:	2 km NE of Kronopark		7 at 77.5 m2, three rooms
	8 km NE of Karlstad		2 at 106.2 m2, four rooms
Project initiators:	future residents		2 at 115.5 m2, five rooms
Project leader:	future residents		5 at 148.8 m2, six rooms
Architect:	Gunnar Persson	Type of ownership:	home owner's association
Landscape architect:	residents	Project developers:	architect
		Builder:	Solstahus - went bankrupt
			PEAB finished project, total contractor
		Building cost:	10,100 SEK/m2

S I T E	
Location:	walking distance to- schools, stores, post office, day care one block away
	surrounded on three sides by woods, the fourth by residential neighborhood
Transportation:	two bus lines to city center - twice an hour, bus stop one block away,
	bike/walking path to college and whole way to city center
Design:	total site - 19,842 m2
	nine duplexes encircling the common house, first goal of site plan to promote social
	gravel road and pathway to site, road leads to eastern edge by garages and storage
	gardens located on south side - between houses and road - walking path cuts through gardens
	play areas in center of site
Landscaping:	surrounded by woods, but few trees on site, site was grazing land before it became community gardens
	flower beds, a few bushes
Gardens:	fromer site for community gardens, good soil, collective purchasing of food staples
compost:	kitchen waste - in 3 shared rotisserie warm compost containers, yard waste - composted in gardens
food storage:	pantry with separate ventilation in each house
Common house:	137 m2, style similar to the other houses, attic could be finished
	sauna, small laundry//drying room, meeting room, small kitchen, coat closet, small workroom
additional buildings:	2 rows of connected garages (with electric outlets), a pump house/storage space,
	compost/trash/recycling house (compost room insulated)

House exterior:	traditional style: copper red wash on wooden siding with white boarders(white paint - linseed oil) small porch over each entrance (not enclosed), houses with attic rooms have dormers red cement roof tiles
INTERIOR	
Floor plan:	all houses same size, but finished to different degrees - finished attic or unfinished attic,houses prepared for further finishing (or already finished second floor) have second story dormer windows
Foundation:	insulated crawl space, skirt of insulation around foundation, 7 cm cell-plastic
Frame:	wooden frame
Insulation:	cellulose fiber (Thermocell): walls - 24 cm, attic - 50 cm, extra insulation on pantry wall, insulation between floors, paper - not plastic - diffusion layer
Floors:	oile or soaped pine, clinkers in 1st floor bath & some entries, plastic mat in 2nd floor bath
Walls:	dry wall - finished with wallpaper, emulsion paint or egg tempera
Woodwork:	exterior portion of windows and doors finished with akyld paint, interior wood oiled or soaped pine
Windows:	triple glazed (2+1), wooden frames
Glass rooms:	available by choice
Kitchen:	solid wood cabinets of ash or pine (oiled or soaped), counter-top of solid beech, energy efficient appliances, recycling under sink, pantry of pine with thick/sauna-like door
SYSTEMS	
Heating:	district heat: pellets furnace (90kW/h) and solar panels (81m2) located in commonhouse (back-up electric furnace), connected to accumlator tank (4,800 liters), [heat loss in culverts due to poor insulation] radiators in floor in bathroom and entry, preparation for ceramic stove in every household
Ventilation:	natural ventilation assisted by a fan in chimney, intake vents over windows are controlled by temperature, separate ventilation for pantry central vaccum system
Water:	tap water from 100 m well, high levels of flouride in water, flouride filter on faucet in common house rain water - led via pipes and dikes to reservioir
gray water:	treated on site: to three-chambered settling tank (15m3), to biological reactor (Emendo Minibed), to sedimentation tank (7m3), through UV-filter, to reservoir (122m3), to watering on-site or to stream
black water:	urine separating toilets(Dubbletten) - all water and waste treated in on-site treatment system, urine to 20m3 tank, to farmer, feces go through treatment process
Electricity:	energy efficient outdoor lighting, electric magnetic fields considered, all lines grounded
Trash/Recycling:	trash/ recycling space by garages, city does not pick up recyclabes - must be transported to recycling center by residents