# A Comparison of Characteristics between Danish and Korean Farmhouses

## -In Reference to Farmhouse Plans, Use of Rooms including Furniture Arrangement, and Building Materials-

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**Abstract** : The aim of this paper was to compare differences and similarities of farmhouses between Denmark and Korea as a cross-cultural study. Farmhouses built during the 18th and 19th centuries in Denmark, and ones from Chosun Dynasty (AD. 1392-1910) in Korea were targets of this study. Literature study and field trips to districts and open-air museums in both countries were used. Field trips were carried out during summer of 2005 in Denmark, and fall of 2005 in Korea. Detailed comparisons focused on farmhouse plans, the use of rooms and furnishing, and building materials. As a conclusion, some differences were found between the two countries. In terms of farmhouse plans, square types with four wings, and parallel types were the most frequent forms in Denmark, while a few types, such as the "I", "L", "U" shapes and square types, were more frequently found in Korea. In Denmark, the most important room was the dwelling-room, in which daily family life took place. Every member of the family slept, ate, and worked here, and kept geese and young animals during the winter season. Therefore, this room was laid out in the center of the house. However, *Anbang*, the most important room in Korea, was not situated in the best part of the house. Instead, the *Daechung-maru* occupied the center and the best place because the *daechung-maru*, in which the ancestral ceremony was held, was thought of as more important than a place for live people. Also the use of rooms and furnishing was quite different between the two countries, reflecting each life style. Danish furnishings represented practical daily life, while Korean furnishings reflected more conceptual aspects. It might have resulted from Confucianism in the Chosun Dynasty, which ruled daily life and even influenced use of rooms and furnishings. In other word, philosophy influenced common peoples' daily life and living environment. With reference to building materials, there was rarely a difference between the two countries. Major materials for farmhouse were quite common, such as half-timbering wood and clay, but the difference was in bricks and roof coverings. Bricks were rarely used in Korean farmhouses, while rice-straw was rare for the roof of a Danish farmhouse. Of course, the choice of materials was strongly affected by the local surroundings and overall environment. This result can give some clues for design ideas when architects and interior designers plan housing that is adapted for local peoples. This kind of cross-cultural study can also contribute to one's understanding of foreign culture, especially in housing and culture. And, it can broaden one's insight of design ideas for designers who have to compete frequently with designers in foreign countries.

Key Words : Denmark, Korea, farmhouse, cross-cultural study, furnishings

## I. Introduction

A house was more characteristic in the countryside than most provincial towns, because farms were often inherited through several generations while a house in town would frequently have been transferred to other

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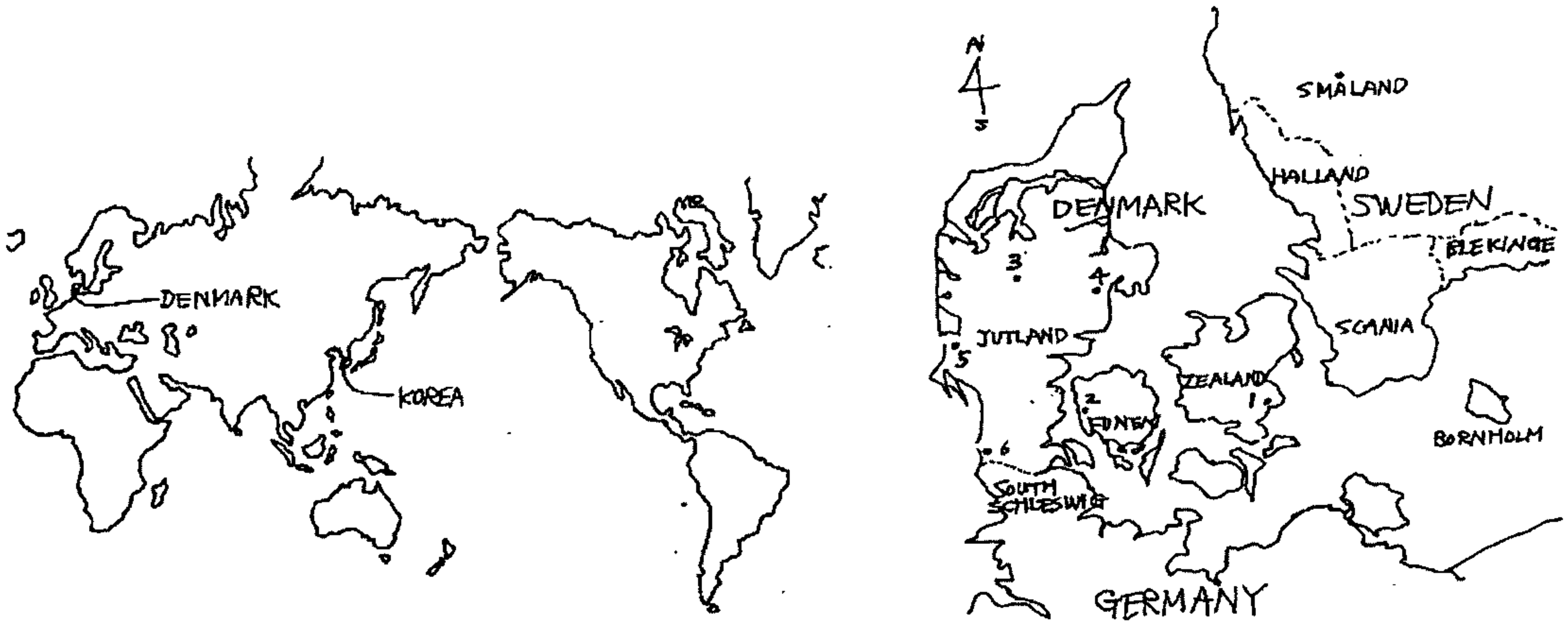
families. Farmhouses, of course, look basic compared to more expensive housings. However, they had little influence from other societies or countries in their way of design and manufacturing; it was easier for farmers to express their personal feelings and had straightforward needs without concealing them behind heavy ornamentation. In this respect, preserved farmhouses occupy an important position as well as housing for the higher social classes. It is possible to assume that farmhouses have been developed quite differently from country to country compared to housing forms in higher social classes. These are the reasons why a study of farmhouses is so important, and why a cross-national study of them is valuable.

In this study, Danish farmhouses from the 18th to the 19th centuries, and Korean farmhouses from the Chosun Dynasty (AD.1392-1910) were analyzed, since during the 20th century great strides in transportation and communication channels resulted in a "closer" world, in which internationalism in design made it possible to produce similar architecture and housing worldwide.

In Korea, generally, distinction of a housing layout between the upper class and the farmers was not as definite as in Denmark. A larger lot, more sophisticated touches or expensive ornaments, of course, could often be found in upper class housings, but the principle of layout and most materials used were standard throughout the social classes. Thus, a broader category of houses was included in the Korean case not just that of farmers. However, since the Danish farmhouses had more distinctive features from those of higher class, only farmers' houses were included in this study.

To understand Danish housing, it is important to note that its design had a close connection with the southern and western parts of Sweden (especially in the districts of *Halland*, *Skania*, and *Blekinge*), most of Norway, Holland, and South *Schleswig* (the northern part of Germany adjacent to Jutland), as well as Denmark itself. It not only was due to frequent historical changes of frontiers among adjacent countries, but also to the geographical position of Denmark. Previously, international transportation by sea had played a more significant role than today, and the location of Denmark occupied a very important place between northern Europe and other parts. This, perhaps, might have made cultural exchanges more easily accessible among neighboring countries <Figure 1>, so it is not difficult to find similar farmhouses to Danish ones in adjacent countries, even now.

The purpose of this paper was to examine differences and similarities of farmhouses in Denmark and Korea. Aspects were discussed in detail in terms of farmhouse plans, use of rooms and furnishing, and building



<Figure 1> Maps of Research Areas: World Map (left) and Denmark Map (right).
Source: Drawings by Author.

materials. This kind of cross-cultural study can help to broaden one's insight of foreign culture, especially in housing life and design. This approach may give some clues for design ideas to architects and interior designers for housing adapted to local life styles.

# II. Research Methods

This paper was carried out by a literature study and field trips to local districts and open-air museums in Denmark and Korea. Before the field trips, the researcher collected information about Danish farmhouses through books by Steensberg (1942, 1966), Benzon (1983, 1984, 1985a, 1985b, 1985c, 1985d), Zangenberg (1925), Uldall *et al.* (1980), Michelsen (1985), Grongård *et al.* (1990), and Vejleder (1985). Besides these books, Professionals were also contacted to get advice for the field trips: Professor Erik Hansen and Marno Gudiksen (Architecture School of Royal Danish Academy of Fine Arts); Mr. Lars Friis (Frilands Musee, Sorgenfri, Copenhagen); Mr. Henric Vensild (Rønne Museum, Bornholm); Mr. Thomas Larsen (Maribo Museum, Loland Falster); and Mr. Gunnar Solvang (Køge Museum, Køge).

Field-trip destinations and open-air museums were chosen in order to identify Danish farmhouse design from district to district: *Frilands Musee* Open-air Museum (Sorgenfri, Copenhagen); Odense Museum (Funen); Den Gamle By Museum (Århus); Køge Museum (Køge); Maribo Museum (Lolland Falster); and Rønne Museum (Bornholm).

Reference books are by Yoon *et al.* (1988), Chun (1988), Hong (1992), and Kim (1993) for information about Korean farmhouses. These were also examined by field trips to local districts and open-air museums: Yongin Folk Village (Suwon); Namsan Hanoak Village, Unhyun Palace (Seoul); and Sungeub Folk Village (Chejoo Island). Field trips were completed during the summer of 2005 in Denmark, and the fall of 2005 in Korea.

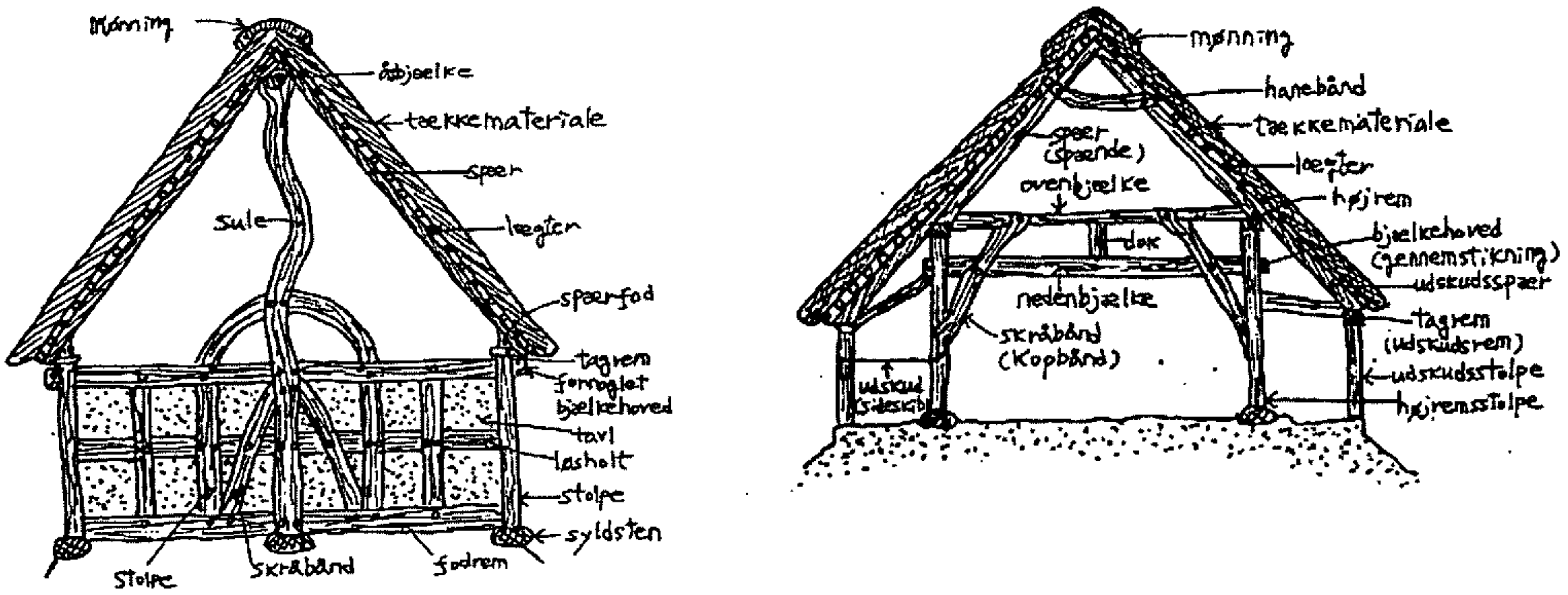
# III. Results and Discussion

## 1. What Are Major Differences in Farmhouses Plans in the Two Countries?

### 1) Danish Farmhouse Plans

Half-timber farmhouses were easily found in Denmark. This is a structure in which the outer and inner walls consist of a framework of timber, and spaces between walls are filled in with wattle and daub. In later years this space was occasionally filled with sun-dried or real bricks. The timber of the outer walls was always oak but the beams were of pine (Steensberg, 1942). About 1800, it became usual in farmhouses to place the tie beams on top of the wall or the wall plate. This technique was, however, used much earlier in town houses and manor houses. The fully developed half-timbering resulted from the influence of carpenters from the towns. A more ancient way of building, partly inherited from prehistoric times, was occasionally found as a vestige from primitive half-timbering. In districts where timber was not sufficiently available, construction was much simpler.

There were two main structural types of half-timbering in Denmark: *sulehus* and *højremshus* <Figure 2>. *Sulehus* refers to a special construction technique in widespread use on Funen over several hundred years, especially on West Funen (Zangenberg, 1925). Primarily, heavy central posts called *sule* support the weight of the roof. These central posts (ridge posts) were placed 5 or 6 meters apart and supported a ridge beam, which in turn supported the rafters. Normally it did not have an outshed. *Højremshus* (the more frequent roof beam construction) consisted of two main posts called *højrems*, which supported the roof. It had aisles (called *udskud*) that were added to the outshed and were used for storage space or alcove beds. The *sulehus* was mainly distributed in the district of Funen and central Jutland, and *højremshus* in northern Jutland. But in the towns there were more detailed half- timbered houses, built by professional carpenters with two stories and many ornaments (Benzon, 1984).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bjælkehoved (gennemstikning)
dok
nedenbjælke
udskudsspær
skråbånd (Kopbånd)
tagrem (udskudsrem)
udskud (sideskib)
udskudsstolpe
højremsstolpe

A: *Sulehus*

B: *Højremshus*

<Figure 2> Half-timbered Structure of Danish Farmhouses.
Source: Zangenberg (1925).

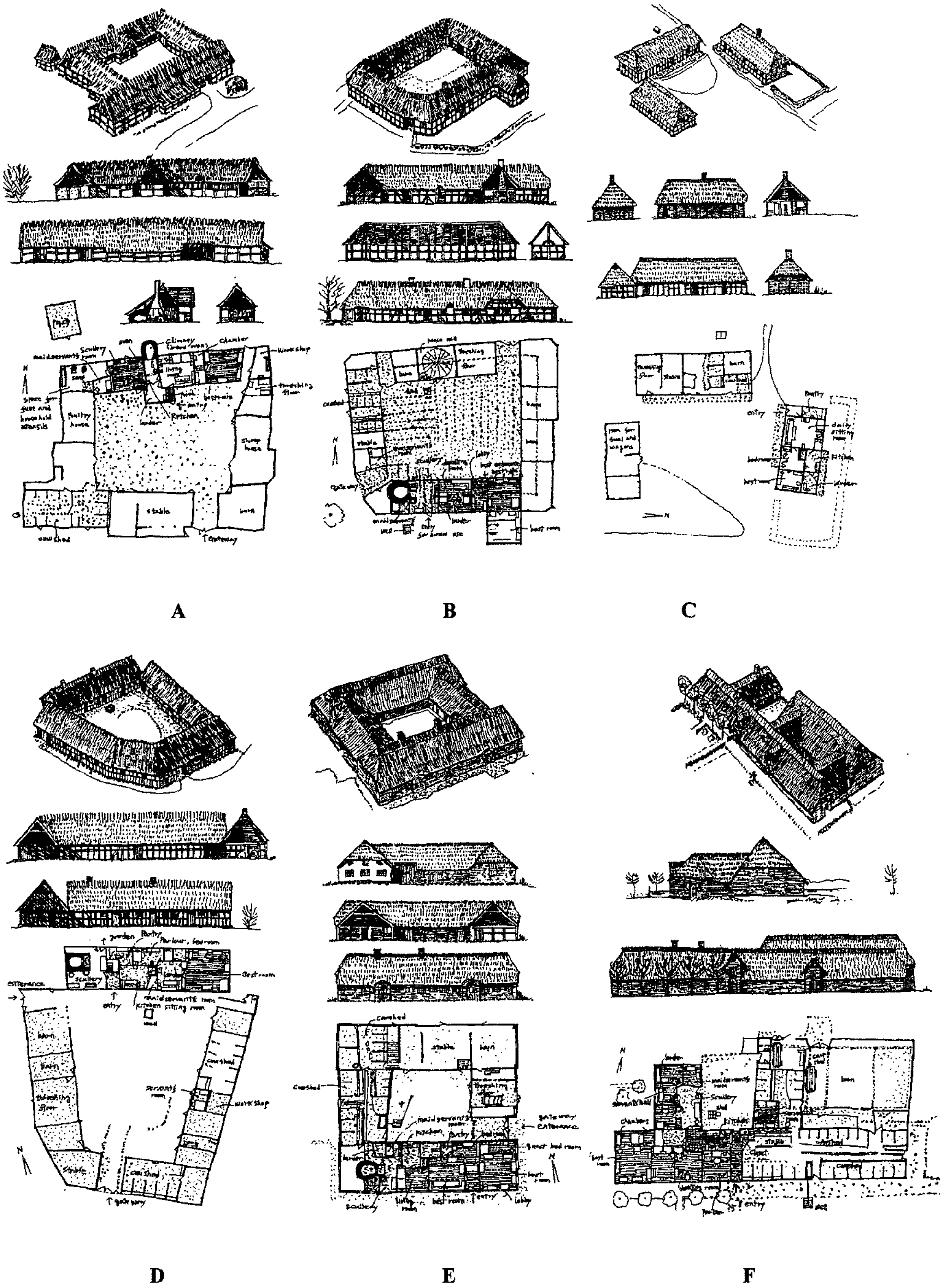
Before the 16th century small wooden shutters were used instead of windows because of a lack of glass, and early in the 16th century, wainscoted rooms were installed and the floors of the downstairs rooms of simple cottages consisted of hard-packed bare earth. More comfortable homes had floorboards (Steensberg, 1966). As soon as brick, stone or plaster was used in walls, there was much less danger from fire, and wall fireplaces replaced the open hearth in most new houses. Smoke went up a chimney instead of drifting around the room, and indoor air became much cleaner.

It was after the 18th century that brick built houses appeared and chimneys and fixed ceilings were introduced on peasant farms. As an exception, houses in Ægger, the open coast of North Jutland, did not have a chimney but instead just had a smoke hole or louver in the roof. Fires were built on a raised hearth close to the dividing wall and under the louver or smoke hole. Smoke from the bread oven went through the louver. Also, houses in Ostenfeld, South Schleswig, had no chimney, but having only an open fireplace. In this district chairs stand around the open hearth, and smoke from the fire went through a small opening in the gable (Michelsen, 1985). Danish farmhouses were often 5-6 meters wide, and the types of house plans were linear, parallel, square, or a mixture of these types. Two-storied farmhouses were not known until the 19th century in Denmark (Steensberg, 1966).

It was possible to find diverse types of farmhouses in Denmark, but it was necessary to classify them into a few typical types based on regions (Michelsen, 1985; Uldall *et al.* 1980; Vejleder, 1985). <Figure 3> shows six representative Danish farmsteads from different regions, as re-erected in the Frilands Musee Open-air Museum at Sorgenfri in Copenhagen.

### 2) Korean Farmhouse Plans

During the Chosun Dynasty, Confucianism was a unique factor influencing house structure. Since the foundation of society was the patriarchal family, and not based on the individual, this concept had a great influence on housing form. Upper class families normally consisted of several generations, which added up to a large extended family. Thus Korean houses were influenced much more by socio-environmental factors such as ancestral worship, neighbors, and other family-oriented elements based on social philosophy, than by practical functionality (Yoon *et al*, 1988). Another important influence of Confucianism on the Korean housing culture was gender segregation. Living quarters were divided by gender and named *Anchae* for the women's quarter and *Sarangchae* for the men's quarter. Women were prohibited from doing many things, especially going out of the house freely, so they spent



A: Farmstead from Pebringe, Zealand.
B: Farmstead from Lundager, Funen.
C: Farmstead from Karup Heath, Central Jutland.
D: Farmstead from True, Eastern Jutland.
E: Farmstead from Lønnestak, Western Jutland.
F: Farmstead from Sønder Sejerslev, North Schleswig

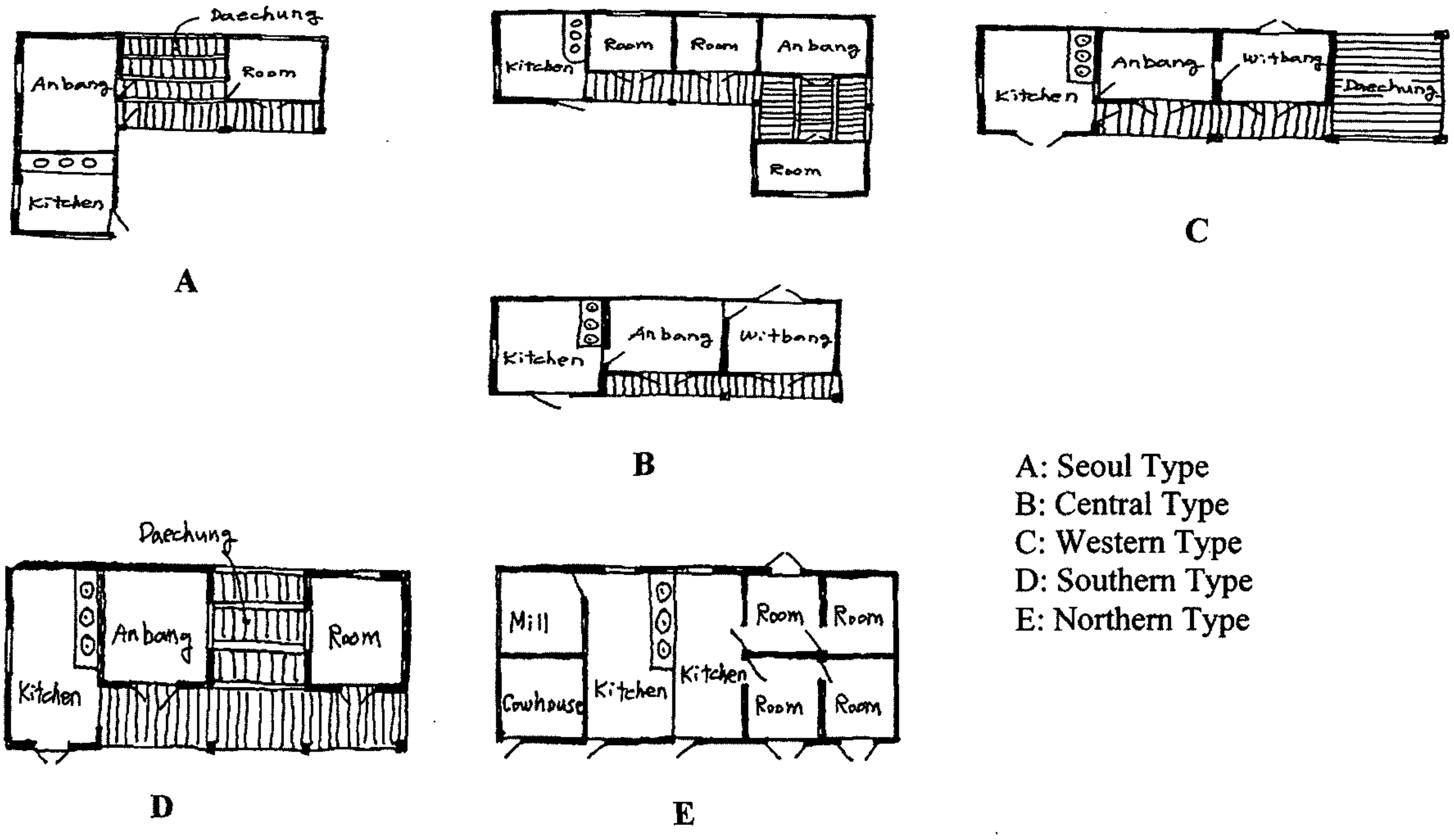
<Figure 3> Typical Site Plans of Danish Farmsteads.
Source: Michelsen *et al.* 1985

almost all their lives in the *anchae*. Women were mostly devoted to housekeeping, such as preparing foods, making clothes, and caring for children and the elderly. Conversely, men usually went through life in the *sarangchae*, studying, entertaining, sleeping, and receiving guests. This principle of building houses was common not only for nobles, but also for intermediate and lower classes of society (Hong, 1992).

The floor plan of the traditional Korean house had asymmetrical characteristics since the different sections possessed special qualities. For example, a single residence was divided into three sections: women's quarter, men's quarter, and an area for the servants and guests (Yoon *et al*, 1988). Each of these sections was subdivided into various rooms such as *anbang* (women' room), *sarangbang* (men's room*), daechung-maru* (wooden floored hall), and side rooms for children or retired elderly. Between these different buildings there were small and large gates built through the walls, integrating the different areas into one large house.

In general, farmhouses were often laid out horizontally in an "L"-shape, "U"-shape, square or parallel horizontal lines. The size of the house lot and income of the family were important factors when deciding on a layout. The richer the family was, the more buildings were built in the house compound. In the farmhouse, the layout principle was the same as for the upper class house. The only difference was reduction of space: normally a building was reduced into a room, such as *anchae* (women's quarter) into *anbang* (women's room) and *sarangchae* (men's quarter) into *sarangbang* (men's room). <Figure 4> shows typical types of Korean traditional farmhouse plans. These in tern can be divided into five regional types: the Seoul Type, the Central Type, the Western Type, the Southern Type and the Northern Type <Figure 4>. Different regional climate feature affected site design.

In the Seoul Type (A), the rooms, kitchen, *maru* and other components of the house were built along the edge of the compound. The layout was mostly "L"-shaped, but sometimes was "U"-shaped or square-shaped. This was called the Courtyard Type, together with the Central Type. The main portion of such houses included an *anbang* and a side room facing it across a *maru*. The kitchen was located next to the *anbang*, and one or two guest rooms might be next to the gate. In the Central



A: Seoul Type
B: Central Type
C: Western Type
D: Southern Type
E: Northern Type

<Figure 4> Typical Site Plans of Korean Farmhouses.
Source: Revised by Author from Yoon *et al.* 1988

Type (B), *anbang*, kitchen, and other rooms formed the core. The wooden floor space ran in front of the rooms next to the kitchen, like a corridor. There was a spacious wooden floor, a *maru*, between the *anbang* and the room across from it. The *sarangchae* was composite with the gate, and these rooms lay at either side of it. In the Western Types (C), the rooms and kitchen were placed on a straight line, and a wooden floor *maru* ran outside the rooms, as a corridor. In some instances, another wooden floor space, *daechung-maru,* was located on the opposite side of the kitchen. The Western Type was considered a type of primitive shape. The *sarangchae* was built separately. In the Southern Type (D), the kitchen, *anbang, maru*, and a room were horizontally placed. A corridor ran in front of the rooms and *daechung-maru*. The aim of this shape was better ventilation, as summer weather in this locale was warmer than in any other region, especially in southern Korea. In the Northern Type (E), the rooms were not laid out along the house compound as in other types, but were all contained in the main building, which was in the middle of the lot. In this type, usually, four *ondol* rooms were placed to make a "田" shape. Between the rooms and kitchen was an area called a *chongji*, where the family might have meals or do simple household chores (Yoon *et al.*, 1988). Cow barns were at the far end of the main building, next to the kitchen. Grain storerooms and storage were the only buildings built separately from the main building. Apparently the severe winters of the region necessitated this compact layout.

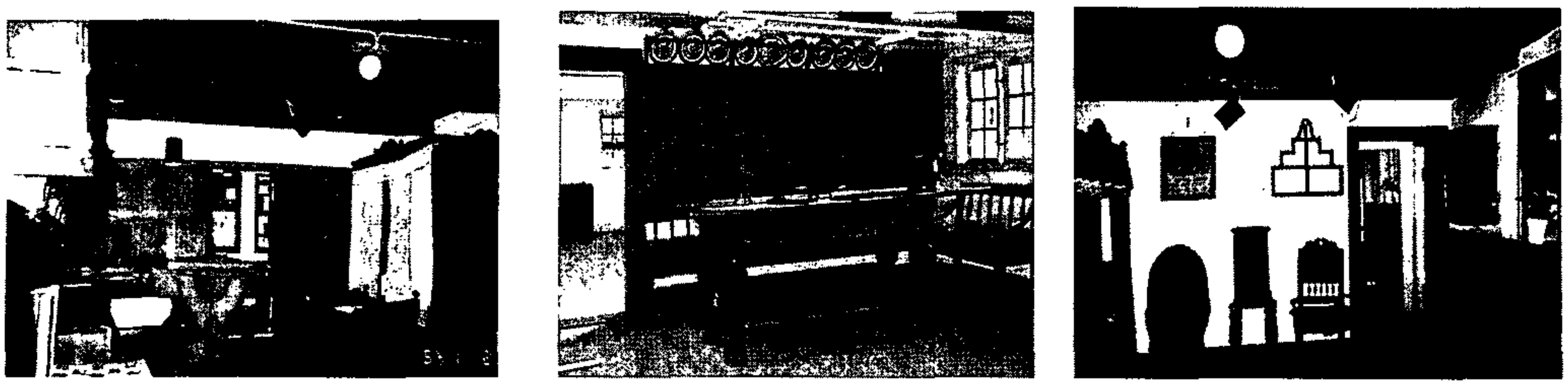
## 2. What Are Major Differences in Use of Rooms and Furnishings Between the Two Countries?

### 1) Use of Rooms and Furnishing in Danish Farmhouse

In the typical Danish farmhouses there were only a few representative spaces: dwelling-room, best room, kitchen, scullery, and bed-chamber. The farm dwelling-room was normally used for multiple purposes such as working, sleeping, eating, and receiving casual guests. During the winter, even geese and other fowls were brought inside the benches by the windows. These benches were therefore referred to as "geese-benches". And weak newborn lambs or piglets were brought inside beside the stove. It was the only room that was heated by an iron stove through the chimney of the scullery. Stoves were introduced in wealthier homes in Denmark at the end of the 15th century, and the iron stove was introduced in the late 16th century. The oldest type was box-shaped and was fitted in the dwelling-room such that it could be stoked through the wall from the open chimney in the kitchen. Most peasants retained earthenware stoves of "Jutland Pot", as only wealthy farmers could afford iron stoves until the 19th century. Fixed benches and a long table along the window were fashionable in the dwelling-room (Steensberg, 1966). The head of the table was the farmer's seat, and on the long side were farmhands' seats. Since women served the men's meals, it was customary for them not to sit by the table during meals. They either stood or sat on simple stools, so their services were easily accessible. In the corner of the wall, where the table and fixed benches were placed, there was a hanging cupboard in which a farmer would keep his valuables such as documents, family remembrances, liquor, and wineglasses (Uldal *et al.*, 1980).

Opposite the table were bedspreads or alcoves. Danish beds were often placed inside the alcove with box-bed shape. Curtains were draped in front of the alcove bed. The bed was often prepared with straw underneath, covered by a feather blankets or two of blue and white striped linen ticking and home-woven sheets, with pillows and upper feather blankets of "homespun". Sometimes there were two beds in a dwelling-room. Four-poster beds fell out of general use about 1870-1880, when furnishings were brought up-to-date. It was much later when separate bedrooms were gradually introduced.

The wooden floor was introduced late. The old clay



<Figure 5> Furnishing of Danish Dwelling-room.
Source: Photos by Author (Køge Museum: left, Odense Museum: middle, Frilands Musee: right).

floor was regarded almost as a continuation of the farmyard. Tin-glazed and decorated tiles from Dutch and Frisian factories in particular were commonly used along the North Sea coast in South Jutland and Schleswig for mountings on the walls in dwelling-rooms. In some districts there was one dwelling-room facing south for the winter and another for the summer facing north. There was a traditional style to furnish peasant dwelling-room, in which most furniture was fixed to the wall <Figure 5>.

The "Best Room" called a *sal* in Danish, was a large unheated room used for keeping things, and put to use at festive gatherings. In this room were high-backed chairs along the walls, heavy wardrobes, chests, and a guest bed. Sometimes this was also used as a dancing hall (Uldall *et al.*, 1980). The chests were for keeping clothes, bedclothes, rolls of ready-woven linen and homespun. As textiles were a status symbol, much care and toil were expanded on them. On festive occasions, the finest textiles were taken out of the chests in the Best Room, and the chairs and benches were covered with embroidered cushions. The beds, cupboards and shelves were covered with embroidery, the table was laid with cloth, and two whole tallow candles lit the room. This was often the first room to be given a wooden floor, and because of its use on special occasions, it was decorated with especially fine panels called wainscoted wall. As it also was the repository of the family's valuables, it usually had iron bars across the windows to protect the room against thieves. The guest bed often stood here, but it was not always pleasant to be a guest. Even a warming pan with glowing charcoals could not drive the dampness and the winter cold out of the feather beds and sheets (Michelsen, 1985).

During the summer, the kitchen was used for cooking and meals for the wife and maidservants, sometimes for the whole family. There was an iron stove for cooking, heated from the chimney in the scullery. Draught holes were not introduced until the 19th century, and the iron kitchen range became common still later. It was necessary to carry water for the household from the pump or well in the courtyard. Beside the kitchen was a larder, in which household utensils not for daily use were kept. In certain farmsteads the kitchen was often combined with the living room, as a kitchen-living room.

The scullery was a large and important room in the farmstead, for here the roughest work in the household was to be done, such as brewing beer, doing the laundry, baking breads, slaughtering animals, and preparing vegetables and milk products. In the scullery were normally found a fixed copper pot, a bread oven and perhaps a malt kiln. The iron stove in the dwelling-room was heated through the chimney in the scullery. The scullery also contained many tools for these and other household tasks. It was, as a rule, situated in a gabled end of the house, with a door to the yard; occasionally it was in a separate building. There was a big open chimney in the scullery to bake bread or boil a lot of water for heavy household work. The chimney was broad at the bottom and open along the front, giving the appearance of a high fireplace. Food was prepared on a raised stone hearth, which either covered the whole floor area of the chimney or just one side of it. An open fire burned on top of the platform, and pots were hung over it on ratchet hangers or placed on an iron trivet. In some districts there was only one chimney in the house, which was in the kitchen or kitchen-living room, but in others there was also one in the scullery (Uldall *et al.*, 1980). A bread oven was found in all farmsteads and in a number of smallholders' cottages. It was usually connected to an open fireplace in the scullery, but was placed in the kitchen when there was only one chimney. In districts under Frisian influence a little bread oven might be located under the stone or mud, and sometimes protruded outside the building under a lean-to. The opening was normally covered with a wooden shutter coated with mud or, in later years, with an iron plate. On account of danger the bread oven was sometimes built outside in a small building by itself, which was sometimes jointly owned.

There might be smaller rooms and bed-chambers for maidservants or farmhands, so up to ten rooms in all were not unusual on Danish farms. Normally the man servants might have their own rooms in a special short wing placed in the center of the yard square, which also contained a byre and shelter for wagons so they could be near the horses. Bed-chambers for servants were dark, small, and primitive.

### 2) Use of Rooms and Furnishing in Korean Farmhouses

The *anchae* (women's quarter) was located in the deepest section of the house and was divided into the *witbang, daechung-maru*, side room, kitchen, storeroom, and the main room or the *anbang*.

The *anbang* was the innermost of all the rooms and was connected to the *daechung-maru*. Only the husband, children and close female relatives could be admitted into this room. It was headquarters of the household, so valuables and keys were kept here. All room floors including *anbang, sarangbang* and *hangrangbang* (servant's room) had *ondol*, which is still in use today throughout Korea. *Ondol* heating channels warmed the air from a stove in or adjacent to the kitchen, through flues running under floors of the rooms. *Ondol* floors were made of stone covered with clay, and were surfaced with a particular kind of oiled paper. In the Korean house, with its paper-covered walls and windows and wooden structure, the *ondol* floor was a warm, comfortable place on which to sit during the long freezing winter. The floor was extremely clean, and outdoor shoes were always removed before entering the interior. This layout fitted very well to the Korean life-style of sitting on the floor (Yoon *et al.*, 1988).

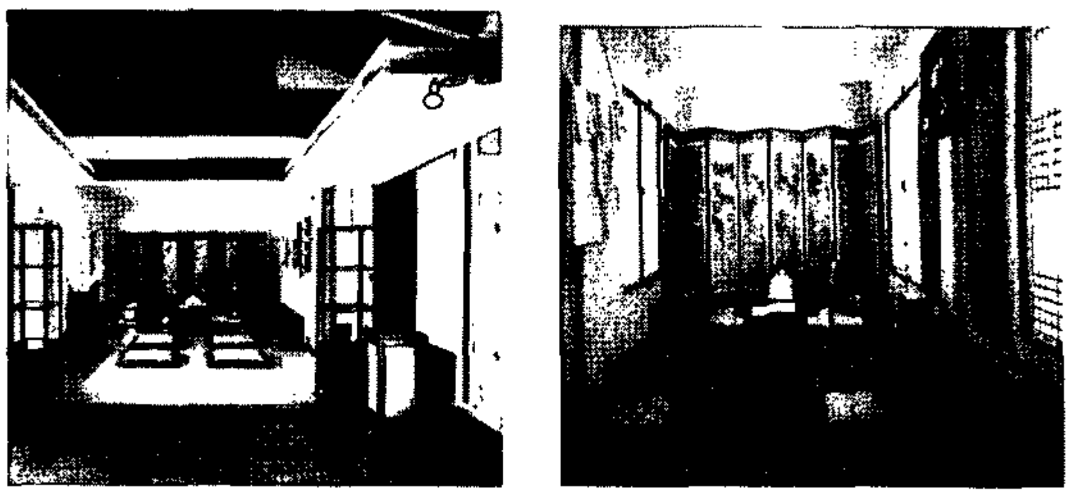
In the Chosun Dynasty, there was a typical regulation of furniture placement in the room. Furniture was generally sparse and large pieces were placed against the walls. Portable small tables and cushions were placed in the center of the room so that furniture did not occupy fixed space and could be removed when not in use. Korean furniture was designed to be multi-purpose. Plain, restrained designs and wood grains were thought appropriate for the serious and humble atmosphere in the men's room, while more cheerful uses were created for the women's room (Chun, 1988). Furnishings used in the *anbang* were single/ double/ triple- drawer chests, a wardrobe, a socks chest, a blanket cabinet, a clothing cabinet, a small chest, boxes, document chests, a folding mirror box, hanging bars, a stove, a folding screen, a bamboo screen, curtains, and mats.

The *daechung-maru* situated in the center of the *anchae* served as the passageway between the *anbang* and side rooms. The ceiling was not installed in the *daechung-maru,* and the inside of the roof was finished by plaster. Usually there was neither a heating system nor a door between the *dachung-maru* and the courtyard. Hence the *daechung-maru* was open and the coolest space during the hot summer season. In summer it was used for various purposes; sometimes it became a drawing room for female guests, or a space for meals during important family festivals as well as a place of ancestral worship ceremonies. However, the *daechung-maru* itself was rather empty and consisted only of minimum furniture: one or two open-shelf units, and sometimes a rice chest. No doors were installed at the *daechung-maru* in the farmhouse, but wealthier people often had doors with sophisticated lattices.

The kitchen connected to the *anbang* was a place for preparing foods, and a multi-purposed stove was concurrently used for both cooking and heating rooms. The kitchen floor was usually made of hardened mud, and was lower than the ground level of other rooms because it had fuel holes for cooking and heating by way of a hypocaust *ondol*. The pantry was located at the side of kitchen, containing small portable dining tables and plates. Dishes and china were kept inside of the heavy cupboards in the pantry. Prepared foods and seasonal cooking equipment were also stored in it.

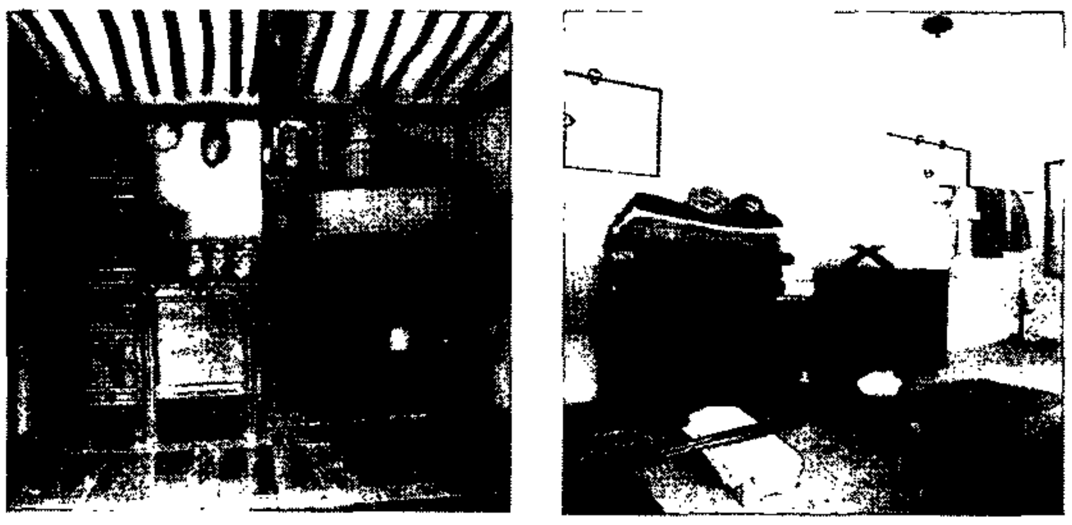
The *sarangchae* (men's quarter) was composed of the *sarangbang* (master's bedroom), *daechung-maru*, side bedroom, library, and ancestral shrine. The *sarangbang* was a multi-purpose room, as it was used as the master's bedroom and drawing room for male guests and study, so it took on an important role in the house. In the Chosun Dynasty it was supposed to be illegal for a husband and wife to share a bedroom. Therefore the *sarangbang* served as the husband's bedroom while the *anbang* did so as wife's bedroom. As it was the place where all male visitors were greeted, a cushion was placed on the seat of honor, on the warmest side of the room. As the *sarangbang* upheld the Confucian teaching of humbleness, no colors were used but grey, black and white. Even the furniture was decorated simply; men sat on mats or low cushions on the floor in a cross-legged position, or squatted on their heels, supporting back and arms with long thin armrests when necessary. A folding screen decorated with black and white pictures or calligraphy was laid behind the master's seat.

The *daechung-maru* in the *sarangchae* served a similar purpose as one in the *anchae*, and was a cool, relaxing place in summer. Only open-shelf units for books and decoration objects were placed at each side of the *daechung-maru*. In summer, however, a straw mat was spread over the *daechung-maru* floor, and all doors in wealthier houses were gathered and hung on hooks to be aired. A bamboo screen was hung in place of doors to keep privacy without disturbing ventilation (Yoon *et al.*, 1988).



A: *Anbang* B: *Sarangbang*

<Figure 6> Furnishing of Korean Upper Class House. Source: Photos by Author (Unhyun Palace).



A: *Daechung-maru* B: *Anbang*

<Figure 7> Furnishing of Korean Farmhouse. Source: Photos by Author (Yongin Folk Village).

The *hangrangchae* was a servants' quarter constructed in middle and upper class homes. Rows of these rooms were built against the wall, stretching in either direction from the main gate. Male servants used rooms closed to the outside, while female servants were assigned to the rooms closed to the main building *anchae* (Yoon *et al*, 1988).

## 3. What Are Major Differences in Building Materials between the Two Countries?

### 1) Building Materials in Danish Farmhouse

It is easy to find beautiful Danish farmhouses built in a half-timber structure with a thatched roof, and it might be one of the characteristics of Danish farmhouses. Although the main building materials were timber, stone, brick and clay, they differed from district to district. Walls of bricks and mortar were used in some noble buildings from the 12th century, but were not found until much later in farmhouses (Steensberg, 1942). The earliest brick houses dated from about 1600 in Southwest Schleswig; from here this form of architecture spread out slowly to the north, and was quite common in West Jutland after 1800. These houses appeared later in the rest of Denmark. As the country has no natural rock, only loose glacial boulders, stone was never used for the farmhouses except on the Færø Islands and Bornholm, where abundant natural rocks were available. Timber was commonly used to build house of half-timber structure, but there was little timber in West Jutland.

Hardened mud or gravels predominantly surfaced farmhouse floors for the kitchen, pantry and dwelling room but not the Best Room. This room was special, and was finished by a wooden floor. There were two kinds of materials for the roofs of Danish farmhouse, roof-tile for the wealthy, and thatched roofs for the farmers. Thatched roof was durable enough for a half century.

### 2) Building Materials in Korean Farmhouse

Korean houses of the Chosun Dynasty were built mainly of wood, clay and stone. A half-timber structure was also used; clay mixed with rice-straw filled walls between the beams, but plaster finish instead of clay was used for nobles' houses. Roofs were covered with roof-tiles for the wealthy, but the farmhouse was covered mostly with a rice-straw roof, as it was available near the farms. A rice-straw roof was not as durable as a thatched roof in Denmark, so it had to be changed every two or three years.

One of the most representative structures of flooring was *ondol* in Korean traditional houses. The intense cold of winter might be the inspiration for the ingenious hypocaust heating system. It was believed to have evolved to its present form during the Koryo Dynasty (AD. 935-1392) (Hanoak Space Study Group, 2005). Most rooms in Korean farmhouses were *ondol* floored except *daechung-maru*. Stone was often used for the base of the house or fence, but brick was scarcely used until early in the 20th century.

With reference to major building materials, there was rarely a difference between the two countries. Half-timber structures using wood, stone and clay were common, but there were differences in bricks and roof covering. Bricks were rarely used for walls of Korean farmhouses, while rice-straw was not used for roofs of Danish farmhouses. Building materials for the houses were of course strongly affected by their surroundings and environment. It was notable that the hypocaust-heating system, which is common in Korea, was never used in Danish houses.

## Ⅳ. Conclusions

Regarding farmhouses in Denmark and Korea, some differences were found in terms of house plans, use of rooms and furnishings, and building materials. The first difference was in house plans. In Denmark, the square types with four wings, and the parallel type, were the most common, while the "I", "L", "U"-shape and square types were more frequently used in Korea. These differences reflected local environments and life style. The second difference was use of rooms and furnishings. In Denmark, the most important room in the house was the dwelling-room, in which daily family life took place. Every member of the family used to sleep, eat, and work here, as well as keeping geese and young animals inside during the winter. Therefore, this room was laid out in the center of the dwelling-house. In Korea, however, the *anbang*, the most important room was not situated in the best part. Instead, the *daechung-maru* occupied the best place because this was where the ancestral ceremony was held, and was thought as a more important place than a room for live people. Furnishing in both countries reflected their own social backgrounds. Those in Danish farmhouses reflected their practical purpose more, while Confucianism in the Chosun Dynasty ruled daily life and therefore this influenced furnishings in Korean farmhouses. Last, building materials for Danish and Korean farmhouses were similar: mostly timber, wood, and clay. Brick was not considered as a common building material until the late 19th century in Korea, as it was used for only high-status construction such as temples, palaces and public buildings. Differences in building materials did not vary by region in Korea, but did so from region to region in Denmark. Building materials were chosen and made available based on their environment.

In conclusion, this kind of cross-cultural study can promote mutual understanding among countries. Furthermore, it offers a clue in design inspiration for those designers who have to survive in the "close" world of the 21st century, with its frequent international contacts.

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