

OBJECT



Pic. 1: old Ganlan houses in Ping An

FACTS

Altitude:	approx. 1000 m. above sea level
Building Age:	0 to approx. 100 years
Dimensions:	approx. 10m. x 6m. x 9m.
Built surface:	60sq.m. to 100 sq.m.
No. of stories:	2 to 3
Typology:	terraced detached house
Climate:	humid, subtropical
Topography:	mountainous
Used Materials:	timber, natural stone

INTRODUCTION

The mountain village Ping An is located in the north-west of autonomous region Guangxi in the Longji mountains region. 13 villages enclosed by terraced rice fields are situated along the mountainsides. With an altitude of approx. 1000 meter Ping An has the highest site. First settlements at this site appeared 700 years ago.

Nowerdays Ping An is the region's touristy centre. The terraced rice fields along the mountainsides, called „The Dragon's Backbone“, are the main touristy spot. Bus trips to the region are offered and organised in whole Guangxi. The development of the past 10 years causes an economic increase in the whole region. Many of the village's houses are used as hotels and guest houses. An increasing number of visitors stay for more than one day.

SITE / LOCATION

The villages are only accessible on foot. They are connected by small pathways. The Ganlan houses are built very closely to each other and aligned to the surrounding topography. Small paths covered with flagstones run between the buildings. Stairs and smaller side paths lead to the entries. There is no planned system of how the buildings are situated to each other. The only determinative criteria is the topography.

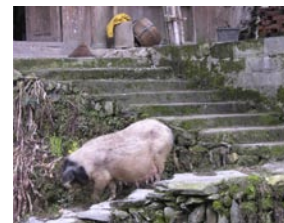
INFRASTRUCTURE

There is a supply with electricity and tap water. The houses hosting visitors are equipped with toilets and showers of western standard. There are also open drains for faeces in separate buildings.

Most of the 800 inhabitants are peasants and work the adjoining fields. Every peasant owns 460 sq.m. on average. For self-supporting nearly every house has its own garden or small field next to the building. Domestic animals as pigs, fowl,



Pic. 2: terraced gardens



Pic. 3: domestic animal

cats and dogs are placed in the building's ground floor. There are only few separate cots. Workshops and small stores are situated on ground level as well.

The transport of crops, goods and building materials is managed on foot. There are no vehicles or pack animals. Ping An has a primary school. Secondary schools are located in towns outside the region. Students have to take the bus. A parking site is located 30 min. on foot from the village.

Small shops in the ground floors sell souvenirs. The villagers are predominantly self-supporters. Stores for everyday necessities are outside the villages in the next bigger towns.



Pic. 4: transportation



Pic. 5: drying laundry

USE

The storeys define the different uses in the building. The ground floor is used as stable, warehouse and workshop. The living room is located on the first floor. This is the centre of one house's social living. The bedrooms are situated around the living room at the outside margins or one floor above. The attic floor is normally also used as warehouse.

CONSTRUCTION

The Ganlan houses normally have a rectangular outline. The traditional construction method is the „three-bays-four-beams“ style. On every storey three rooms lie side by side and four beams carry the storey above. Most of the buildings have two rows of three to four bays and two to three storeys with similar segmentation. Due to the limited plot of land along the mountainsides the upper storeys overhang over the ones underneath to enlarge the floor space.

The construction is completely made of timber except foundation and roof covering.

The separately standing columns allow a balanced statics and protect the building from damages by earthquakes and landslides.

CONSTRUCTION PROCESS

When the foundation is completed the construction workers erect the skeletal structure. Support columns and hanging columns are connected with the supporting beams using timber joints and sliding wedges for adjusting. The connections are rugged but quickly and easily detachable. While the skeletal structure has got no bracing walls it is braced by temporarily attached spars. When skeletal structure and truss



Pic. 6: wood and stone infills



Pic. 7: skeletal construction

are completed the roof is covered. Floorboards, window frames, infills and inner elements now can be manufactured on site and assembled under a weatherproof roof.

It is not known whether only local villagers take part in the building process. In all probability the building workers come from adjacency.

Except newer materials as concrete and concrete building stones all building materials are from the region. The timber is lumbered in the densely forested areas around the terraced fields.

All materials have to be transported to the building site neither with vehicles nor pack-animals.

FOUNDATION

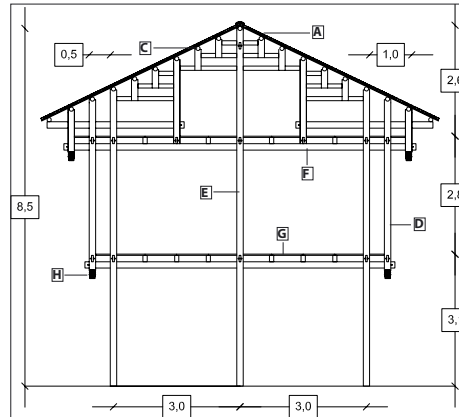
Where the topography does not provide enough space for a building terraces are made of stacked flagstones and boulders. These stacks are up to four meters high. The natural stones are transported from near quarries. Recently foundations more and more are made of concrete.

WALLS

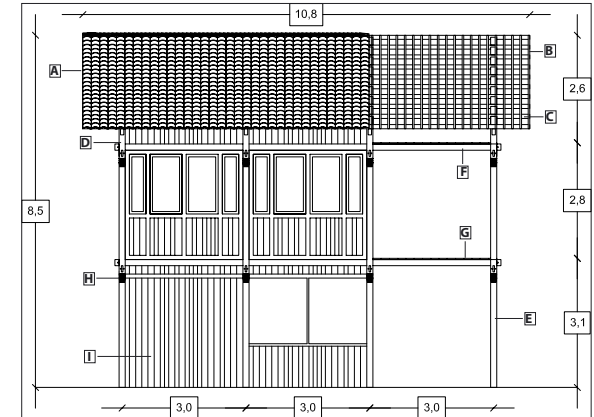
All infills in between the skeletal structure are traditionally made of timber boards which are attached vertically or horizontally between the supporting columns. The boards can be easily removed to let in sunlight and fresh air or to enlarge the buildings with annexes. Sometimes outwalls become balustrades and the prior rooms become open terraces.

The wooden infills apparently enable a sufficient bracing. Recently concrete building stones are used to build bracing infills on ground floor level. Two thirds of the wall are filled with building stones and one third is filled with wooden boards.

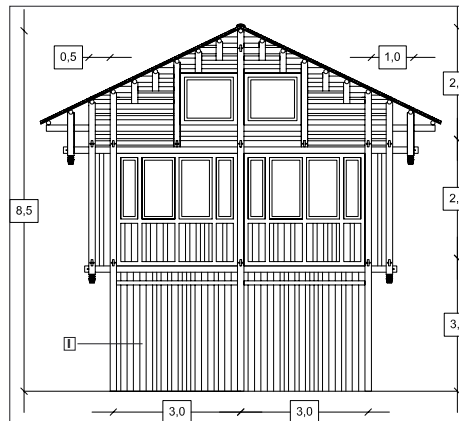
Houses leaning on the mountainsides sometimes don't have any infills. The ground floor is open and is used as workshop or warehouse. The connection to the mountainside allows any missing of bracing walls.



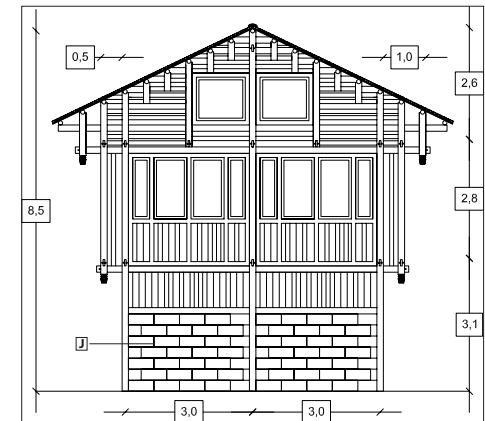
Pic. 8: skeletal construction (lateral view)



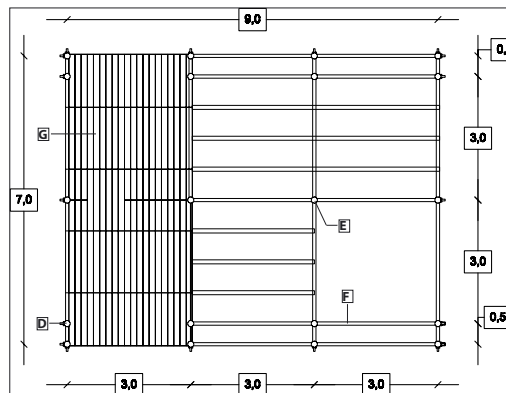
Pic. 9: construction and infills (longitudinal view)



Pic. 10: wooden infills



Pic. 11: infills of concrete building stones



Pic. 12: first level ground plan

LEGEND

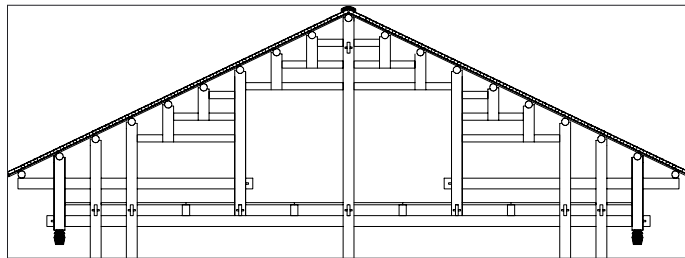
- A - roof tiles
- B - battens
- C - spar
- D - hanging column
- E - supporting column
- F - beam
- G - floorboard
- H - carved extended end
- I - wooden infill
- J - concrete building stone infill

OPENINGS

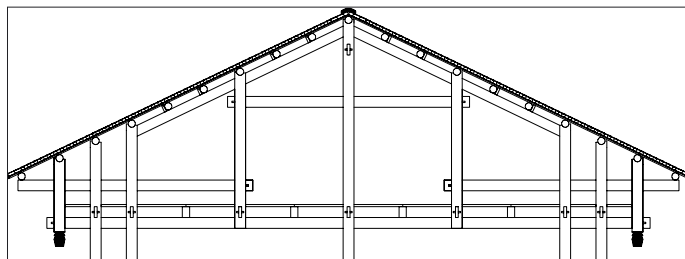
Traditionally window and door openings are relatively small. On ground floor level closed infills made of wooden boards dominate. The location on mountainsides require small openings to keep out strong winds and wetness. Inner rooms are accordingly dark and non ventilated. The temporary opening of wooden infills adjusts this situation. Mostly hotels and guesthouses nowadays have wide window openings to meet the visitors' claim to great views over the terraced fields.

ROOF

The roofs are formed as saddleback roofs. It overhangs up to 100cm to all sides. Overhanging annexes on the upper floors are roofed with pent roofs. The roof covering is made of small curved roof tiles in shale-grey colour. The covering is made in monk-and nun style. The tiles of 20cm x 30cm size run in



Pic. 13: truss (type A)



Pic. 14: truss (type B)

loosely stacked layers from ridge to eaves. The tiles are loose and not adjusted to the battens. The number of tiles and the thickness of stacking hold the covering on the battens. The ridge is covered with an additional stacking of 20cm to 30cm height.

The truss construction can not be classified with common western typologies. The battens bears on spars which continue over the roof's length in a distance of 80cm to 100cm to each other. The spars bear on supporting and hanging columns in a span of approx. three meters (one bay). In most buildings every spar is borne by a row of columns (type A). There are some rafter constructions (type B).

INNER BUILT ELEMENTS / FURNITURE

The most important inner element is the fireplace. It is located in the middle of the living room and consists of a bowl which is covered with fireproof clay. It is embedded and bears on ceiling joists. The firing material is coal. There is no flue. The inner walls are soot-blackened. The soot is an efficient wood preservation.

The fireplace is more than a kitchen. It is a place for communication, singing, for receiving visitors and a resting place. It is a sacred place in the house.

In many houses the inner built elements fit to the touristy requirements. Instead of a fireplace there are separate rooms with current kitchen facilities.

ORNAMENTS & SYMBOLS

The buildings are decorated with just a few ornaments like the extended ends of the hanging columns. They are carved in forms of lotus flowers or lanterns and painted afterwards.

PROBLEMS / CHANCES

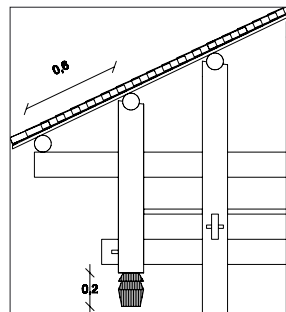
The region's economic increase is obvious. For many peasants the accommodation and guiding of tourists allow an additional income. By carrying on tilling their fields for their livelihood they conserve their main attraction, the terraced rice fields. Shows with dancers in traditional costumes may please or not. It is a possibility for an additional income and helps to preserve the Zhuangs' traditions and cultural identity.



Pic. 15: truss



Pic. 16: roof covering



Pic. 17: roof structure with ornaments (detail)



Pic. 18: carved extended ends

CONTINENT: Asia > LAND: P.R. of China > REGION: Guangxi > SUBREGION: Longji > OBJECT: **Traditional Ganlan Houses in Ping An**

Images:

all pictures and plans by Jan Flemmig

Literature:

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