RENOVATION TOOLBOX: Strategies for adapting vernacular architecture in rural China

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Dwellings below, fields upstairs
One of the most radical solutions in the field of shelter is represented by the underground
towns and villages in the Chinese loess belt. Loess in silt, transported and deposited by the
tide. Because of its great softness and high porosity (45 per cent), it can be easily carved.
In places, roads have been cut as much as 16 feet deep into the original level by the action
of wheels. In the provinces of Honan, Shansi, Shensi, and Kansu about ten million peo-
ple live in dwellings hollowed out from loess.

The photographs show settlements of the most rigorous, not to say abstract, design near
Tungchou (Honan). The dark squares in the flat landscape are pits some 80 feet in area, or about the size of a tennis court. Their vertical sides are 25 to 30 feet high.

Lobed staircases lead to the apartments below whose rooms are about 30 feet deep and
15 feet wide, and measure about 15 feet to the top of the vaulted ceiling. They are lighted
and aired by openings that give onto the courtyard. "One may see smoke curling up from
the finish," writes George R. Crosey in his Land of the 500 millions: A Geography of China,
even though there is no house in sight: "such land does double duty: with dwellings below
and fields upstairs." The dwellings are clean and free of vermin, warm in winter and cool
in summer. Not only habitation but factories, schools, hotels, and government offices are
built entirely underground.
CASE STUDY 1
PLUG-IN-TULOU

TRANSFORMATION
- adding space
- changing use

CATEGORY
- building structure

NUMBER OF INHABITANTS:
AREA:
TIMEFRAME:

DESCRIPTION
In order to add private living space, individual families broke through the Tulou's thick exterior wall. In conjunction with surrounding dwellings, these expansions form a variety of small squares and spaces that now define the village.
CASE STUDY 2
SLICE-OFF-TULOU

TRANSFORMATION
- splitting plot
- renovation

CATEGORY
- adaptation

NUMBER OF INHABITANTS:
AREA:
TIMEFRAME:

DESCRIPTION
When the family decided to split the plot of the existing Tulou, some family members tore down their respective part, paired up and build a new and independent building on one edge of the plot, while others decided to use the existing building for a renovation. Former access spaces are transformed into balconies.
CASE STUDY 3
REBUILD-TULOU

TRANSFORMATION
- splitting plot
- rebuilding

CATEGORY
- building structure

NUMBER OF INHABITANTS:

AREA:

TIMEFRAME:

DESCRIPTION
Only the entrance facade of the rectangular Tulou is left in its original state. Eight brothers and their families have all independently rebuilt their inherited part.
SHIJIA VILLAGE, SHAANXI PROVINCE 2009-2012