

## A&M team 'goes underground' for naturally insulated housing

EXPOSURE

SOUTHERN

Exchanger and

**By GREG PROPPS** 

'Going underground" may take on a new meaning. It may soon mean an innovative and energy efficient form of urban housing.

Gary Sorensen, a lecturer in the civil engineering department at Texas A&M University, is doing research on using the earth as a building material, and using wind, water, vegetation and the sun as a climate modifier. Sorensen's research in-cludes building houses partially underground.

By using a subterranean design, the builder can take advantage of the earth's insulative properties. The ground is slow to react to

climatic temperature change and serves as a perfect year round in-sulator, Sorensen said. Don Sweeney, assistant dean of the college of architecture and environmental design, and a partner in the research, said there is a relatively constant soil temperature at 30 feet below the surface, and in a moderate climate, such as College Station, that temperature would al-

ways be 68 degrees. Building a house partially under-ground would utilize this constant temperature to reduce heating and cooling costs as well as reducing construction energy consumption. Sorensen said that by using indigenous or locally occurring building materials, energy could be saved. This would leave conventional

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and

building materials free for other strength of wood and could be made

L. Dale Webb, an associate professor in civil engineering, and another partner in Sorensen's research, said since cold air settles in low places, proper ventialtion would allow the house to become a pool of cool air in the summer. Closing off the ventialtion would keep the house warmer in the winter.

One of the team's designs involves digging out a suitable space and running structural beams across the hold at the ground level. The inside and outside walls would then be hung from these beams.

Webb said that hanging walls from above makes them non-loadbearing. This would make it possible to have moveable inside walls for a more flexible living space once the house is finished. A sus-pended wall would not need the

of a less expensive material. The roof would be built several

Hillside earth-home

feet above the ground surface to allow natural lighting through skylights and provide a view of the outside. This would give the house a more conventional look, helping to dispel the misconception of living like a mole

This design would also allow landscaping around the structure, to help generate or dissipate air currents around the house.

The projected costs for a house of this type would be around \$15 per square foot as opposed to \$35 per square foot for a conventional structure, Sorensen said.

Another deisgn involves tunnel-ing into the side of a hill, still using the earth's insulative properties, but allowing the southern wall to re-

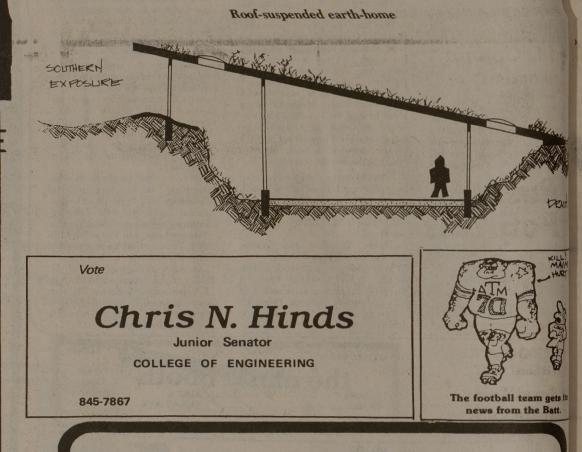
main exposed. This way a con tional front door and windows

VENT

be used, Sorensen said. Exposing only the southe also helps to reduce coolin heating costs. Sorensen sa this design would allow how steep hills that would other unsuitable for building.

Sorensen is in the proce uring a 13-acre site at the Uni Research Annex to build exa of his housing ideas. He sug the Construction Equipment ing School at the annex cou

to build the structures. The idea of building partia derground is not a new on Chinese have done it for cent But Sweeney said there is a pr in selling the idea to the People just won't accept an it this until it has been researd reintroduced locally, said Swe



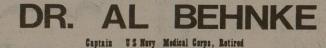
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