

## Castles in the Air (TL10<sup>^</sup>)

Contragravity generators let unmodified humans live nearly anywhere in Earthlike comfort. Floating buildings, or even cities, are possible, usually with multiply-redundant power plants in case of failure. With TL11+ biotechnology, the cities might even be alive! A less extravagant dwelling is the contragrav houseboat, which can be tethered just above the trees – or above the clouds.

Contragravity lets mineral-rich high-G worlds be settled without having to worry about exoskeletons or creating variant humans. Artificial-gravity generators can supply normal gravity to asteroids and small moons, and sprawling orbital cities can be constructed without worrying about providing spin.



## Phantom Places (TL10<sup>^</sup>)

Holotech projectors can create illusionary partitions and art images; redecoration is as easy as changing programs. Any room in the home or apartment might seem to be floating in starry space, or hidden in a tropical jungle. Scented air conditioning and realistic audio effects can complete the illusion.

## Star Habitats (TL10-12)

An entire star can be partially or completely enclosed. Societies might build them in systems lacking habitable planets, or to collect power for major industrial projects like large-scale antimatter construction. (A sun-like star has an output of around  $4 \times 10^{26}$  watts). These projects generally require self-replicating machines (p. 92) to build.

All of these structures could also enclose larger or smaller bodies – a ring or sphere around a small red dwarf star would be easier to build. Stellar structures are generally so large that the curvature of the horizon would be invisible; standing on the inside of a Dyson sphere would be like standing on a flat surface with a large bowl overhead. Common examples are:

### Dyson Bubble (TL10)

A loose array of light sails and solar energy collectors which beam energy to other habitats. It would require the mass of a large asteroid to be dismantled and used to manufacture solar collectors. This type of Dyson sphere could be built as part of a project to power lightsail-equipped starships.

## Classic Dyson Sphere (TL11)

A shell of energy collection platforms and habitats orbiting independently around a star. The star would be dimmed, but possibly still visible through gaps in the shell, although the whole sphere would shine very brightly on infrared. It requires dismantling a number of planets.

## Rigid Dyson Sphere (TL12<sup>^</sup>)

A solid shell around a star, with the inner side sculpted into continents, oceans, etc. with a surface area of over 600 million Earths. It would be a microgravity environment unless artificial gravity generators were used. Building it requires dismantling a solar system and using exotic materials. Multiple, layered spheres are also possible.

## Ringworld (TL12<sup>^</sup>)

This is a solid ring around a star, with the inner side sculpted into continents, oceans, etc., rotating for gravity. A typical ringworld has an area of 20,000 Earths. The rotational stresses involved require superscience building materials. It is also unstable: a space drive or tractor-beam anchoring system is needed to keep the ringworld from drifting into its sun. Variations such as giant disks or tangled tubes are also possible.

## The House that Lives (TL11)

Biotech developments may make it economical (though not always fashionable!) to grow living houses with warm fleshy walls, cell-like membranes for doors, and extrudable furniture. A living house thrives on human waste products and other garbage. It may also have security features that let it *digest* intruders; a classic cinematic plot has such a house being sabotaged so that it devours the occupants.

At TL11, a typical three-bedroom home drops to \$50,000. LC3.

## Under the Screen (TL11<sup>^</sup>)

By generating a low-power barrier screen (p. 191) over a city, planners can dispense with solid domes or underground dwellings – and won't have to worry about bad weather, either. Or a homesteader can buy a smaller field generator and power plant and set up on the asteroid of his choice. Of course, if the field goes down, he's in trouble – unless he has a backup generator on.

With a powerful force screen and an antigrav generator, a research station could be built deep within a gas giant's crushing atmosphere, or hovering within a star. The engineering problems would be immense, but think of the view!

## The House in the Fog (TL12)

At TL12, houses are often filled with utility fog (pp. 70-71) that replaces some or all solid interiors.

## Force Field Houses (TL12<sup>^</sup>)

Advanced houses may be made almost entirely of structural force shields (p. 192). They might be filled with utility fog, or use internal force field projections, tractor beams, and gravitic fields for furnishings, overlaid with holoprojections as necessary.