Guidelines to be included on this list: Design must intend for permanent human habitation. Design must be published or widely publicized (paper or stats easily found by Google search).

| | Name of Design | Year of Publication/ Release | Author(s) | Era | Cost (2015, USD millions) | Mass (metric tons) | Population Target | Location | Diameter (meters) | Length (meters) | Basic Shape | Energy Notes | Artificial Gravity Notes | RPM | Website link(s) | Notes | Associated with NASA Ames Contest? | Associated with Al Globus? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | illustrating scale only, may be inexact, see notes for each entry | | | | for the human habitation portion of the settlement | | | | | |
| | | | | early (before 1975) | | | | | | | | | | | | | | |
| 1 | Brick Moon | 1869 | Edward Everett Hale | early | 1,754 | 132,000 | 200 | MEO | 61 | n/a | Sphere | solar | | | http://www.searchengine.org.uk/ebooks/33/52.pdf | Work of fiction but it is the first detailed thought experiment on orbital space settlement. | no | no |
| 2 | Tsiolkovsky "Greenhouse" | 1903 | Konstantin Tsiolkovsky | early | | | | | | | Cylinder | solar | | | http://www.secretprojects.co.uk/forum/index.php/topic,5993.0.html, http://settlement.arc.nasa.gov/75SummerStudy/Chapt.1.html#History | First scientific description of artificial gravity and solar radiation to aid agriculture and permanent space habitation | no | no |
| 3 | Oberth Wheel | 1923 | Hermann Oberth | early | | | | | | | Torus | | | | http://www.astronautix.com/o/oberth.html | Unclear if intended to be a home or a base, published in his seminal work, "The Rocket into Interplanetary Space", his station design rotates to provide artificial gravity and is a fuel depot. | no | no |
| 4 | Wohnrad | 1928 | Hermann Noordung Potocnik | early | | | | GEO | 30 | | Disk | | | | http://www.astronautix.com/n/noordung.html, http://settlement.arc.nasa.gov/75SummerStudy/Chapt.1.html#History | unclear if intended to be a home, published in his seminal work, "The Problem of Space Flight" | no | no |
| 5 | Bernal Sphere | 1929 | John Desmond Bernal | early | | | 30,000 | | 16,000 | | Sphere | solar | | | https://en.wikipedia.org/wiki/Bernal_sphere | | no | no |
| 6 | Orbital Base | 1949 | Ross and Smith | early | | | 24 | GEO | 60 | 140 | Disk | solar | | | http://www.bis-space.com/what-we-do/projects/bis-space-station | unclear if intended to be a home, this station design has a detailed description of space solar thermal power and separates gravitic and zero g non rotating portions | no | no |
| 7 | Wheel Station | 1952 | Wehrner Von Braun et al | early | 36,036,036 | | | MEO | 76 | | Torus | solar | | | http://www.unz.org/Pub/Colliers-1952mar22-00024 | unclear if intended to be a home, | no | no |
| 8 | Bubbleworld | 1964 | Dandridge Cole | early | | | | | | | Hollow Asteroid | solar | | | https://discoveryenterprise.wordpress.com/2007/08/08/islands-in-space-the-chall | | no | no |
| | | | | modern (1975 - 1994) | | | | | | | | | | | | | | |
| 9 | Sunflower | 1975 | O'Neill et al | modern | | | 10,000 | L4/L5 | 457 | | Cylinder | solar | 1g | | http://www.nss.org/settlement/ColoniesInSpace/colonies_chap08.html | brief reference in link provided, "stubby cylinder", envisioned as a retirement home | no | no |
| 10 | Stanford Torus | 1975 | O'Neill et al | modern | | | 10,000 | L4/L5 | 1,600 | | Torus | solar | 1g | | http://www.nss.org/settlement/nasa/75SummerStudy/Table_of_Contents1.html | | | |
| 11 | Bernal Sphere | 1976 | O'Neill et al | modern | | | 10,000 | L4/L5 | 500 | | Sphere | solar | 1g | 1.9 | http://www.nss.org/settlement/space/bernalspheredetail.htm | | no | no |
| 12 | O'Neill Cylinder | 1976 | O'Neill et al | modern | | | 2,000,000 | L4/L5 | 8000 | 32000 | Cylinder | solar | 1g | | https://en.wikipedia.org/wiki/O%27Neill_cylinder | population target = "millions" i.e. at least 2 million people | no | no |
| 13 | Space Flower | 1985 | Nagaoka | modern | | | | | | | Cylinder | | | | http://stereobits.tumblr.com/post/19302247852/brighter-suns-space-flower-by-sh | was only able to find a graphic made for the Mitsubishi Pavilion at the Tsukuba World Expo in 1985, not sure if this is an actual full design | no | no |
| 14 | Lewis One | 1991 | Globus | modern | | | 10,000 | | 534 | 1,921 | Cylinder | solar | | | http://settlement.arc.nasa.gov/LewisOne/lewisOne.html | | no | yes |
| | | | | contemporary (1994 - present) | | | | | | | | | | | | | | |
| 15 | DHL, Inc. | 1994 | Diaz, Hom, Leong | contemporary | 2,000,000,000 | | 1,000,000,000 | | | | | | | | http://settlement.arc.nasa.gov/Contest/Results/94.html | Ames Contest grand prize winner | yes | |
| 16 | McKendree Cylinder | 1995 | McKendree | contemporary | | | | | 922 | 9220 | Cylinder | | 1g | | http://www.zyvex.com/nanotech/nano4/mckendreePaper.html#RTFToC17 | reimagines much larger ONeill cylinders using CNTs instead of steel | no | no |
| 17 | Hollow Asteroid | 1995 | Herder, Shepherd, Hirst | contemporary | | | | L4/L5 | | 850 | Hollow Asteroid | fission | | | http://settlement.arc.nasa.gov/Contest/Results/aRock95.html#Conclusion | Ames Contest first place for technical merit | yes | |
| 18 | Tango III | 1996 | Podesta et al | contemporary | | | | L4/L5 | | | | solar | | | http://settlement.arc.nasa.gov/Contest/Results/96/winner/ | Ames Contest grand prize winner | yes | |
| 19 | Bishop Ring | 1997 | Bishop | contemporary | | | | L4/L5 | 2,000,000 | 500 | Torus | solar | | | http://www.iase.cc/openair.htm | "Open-Air" torus, a la Ringworld | no | no |
| 20 | SCORE | 1997 | Woods | contemporary | | | 300,000 | | 7,120 | 12,500 | Hollow Asteroid | solar | | | http://settlement.arc.nasa.gov/Contest/Results/97/winner.html | Ames Contest grand prize winner | yes | |
| 21 | Babylon Project | 1998 | Beatty and Peters | contemporary | | | 3,500,000 | L5 | 25,000 | 31,000 | Hollow Asteroid | solar | | | http://settlement.arc.nasa.gov/Contest/Results/98/winner/ | Ames Contest grand prize winner | yes | |
| 22 | Daedalusa L4 | 2000 | Cummins et al | contemporary | | | 10,000 | L4 | 2,132 | | Torus | solar | | | http://www.daedalusal4.org/cover.htm | See central sphere idea, Diameter = major radius x 2 , Ames Contest Grand Prize Winner | yes | |
| 23 | Avalon | 2001 | O'Connell and Thaker | contemporary | | 163,200 | 10,000 | L5 | 644 | | Torus | solar | | | http://settlement.arc.nasa.gov/Contest/Results/2001/avalon/avalon.htm | Diameter = major radius x 2, Ames Contest Grand Prize co-winner | yes | |
| 24 | Centurion | 2001 | Azmi | contemporary | | | 8,000 | L5 | 1,712 | | Torus | solar | | | http://settlement.arc.nasa.gov/Contest/Results/2001/centurionWEB/CENTURION. | Diameter = major radius x 2, Ames Contest Grand Prize co-winner | yes | |
| 25 | Aether | 2002 | Hsiau, Hsiau, Tse, Nemov | contemporary | | | 100,000 | L4/L5 | 4000 | 500 | Torus | solar | 1g | 0.66 | http://settlement.arc.nasa.gov/Contest/Results/2002/Aether/Construction.htm | Diameter = major radius x 2, length = minor radius x 2, Ames Contest Grand Prize winner | yes | no |
| 26 | Teba 1 | 2003 | Teodorescu, Bahrin | contemporary | | 25,000 | 10,000 | L4/L5 | 1760 | 30 | Torus | solar | | | http://www.nss.org/settlement/nasa/Contest/Results/2003/teba/TEBA-1.htm | Interesting report on vibrations in the structure, Diameter = major radius x 2, length = minor radius x 2, Ames Contest Grand Prize winner | yes | no |
| 27 | Leda | 2004 | Valentin, Andrei, Maria | contemporary | | | 250,000 | L4 | 8022 | 1000 | Torus | solar | 1g | | http://settlement.arc.nasa.gov/Contest/Results/2004/winner/LEDA.pdf | Diameter = major radius x 2, length = minor radius x 2, Ames Contest Grand Prize winner | yes | no |
| 28 | Vademecum | 2006 | Bridi | contemporary | 352,700,000 | | 11,500 | LEO | 1600 | 100 | Torus | solar | 1g | | http://www.nss.org/settlement/nasa/Contest/Results/2006/Vademecum.pdf | Interesting "truncated ellipsoid" torus shape, Diameter = major radius x 2, length = minor radius x 2, Ames Contest Grand Prize winner | yes | no |
| 29 | Apis | 2007 | Ovidius HS | contemporary | | | 50,000 | L4/L5 | 8022 | 1000 | Cylinder | solar | 1g | | http://www.nss.org/settlement/nasa/Contest/Results/2007/Apis.pdf | Honeycomb Construction, Diameter = major radius x 2, length = minor radius x 2, Ames Contest Grand Prize winner | yes | no |
| 30 | Pinta | 2007 | Becerik, Ozaydin | contemporary | | | 10,000 | L5 | 8000 | 1000 | Torus | solar/fission | 1g | | http://settlement.arc.nasa.gov/Contest/Results/2007/PINTA.pdf | Diameter = major radius x 2, length = minor radius x 2, Ames Contest Grand Prize winner | yes | no |
| 31 | Kalpana One | 2007 | Arora, Bajoria, Globus, Strout | contemporary | | x | 3,000 | | 500 | 325 | Torus | solar | | | http://alglobus.net/NASAwork/papers/2007KalpanaOne.pdf | there are actually four Kalpana designs: One through Four One is the original paper. | no | yes |
| 32 | DACIA'S | 2008 | Alexandru et al | contemporary | 44,849,360,000 | | 600,000 | L4/L5 | 9000 | 1500 | Torus | solar | 1g | | http://www.nss.org/settlement/nasa/Contest/Results/2008/DACIAS.pdf | 3 Tori, Diameter = major radius x 2, length = minor radius x 2, Ames Contest Grand Prize winner | yes | no |
| 33 | Asten | 2009 | Yam | contemporary | 627,990,000 | | 22,500 | GEO | 1000 | 1700 | Cylinder | solar | 1g | | http://www.nss.org/settlement/nasa/Contest/Results/2009/ASTEN.pdf | interesting cost data, Ames Contest grand prize winner | yes | no |
| 34 | Aresam | 2010 | Durango HS | contemporary | 358,412,450 | | 22,000 | Mars Orbit | 2400 | | Torus | solar/fission | .96g - 1.029g | | http://settlement.arc.nasa.gov/Contest/Results/2010/Aresam.pdf | reads like a scifi novel, huge 600m radius central hub, Diameter = major radius x 2, length = minor radius x 2, Ames Contest Grand Prize winner | yes | no |
| 35 | Hyperion | 2011 | Guarav et al | contemporary | 243,906,060 | ~555,000 | 20,000 | L4 | 1864 | 320 | Torus | solar | 1g | 0.97 | http://settlement.arc.nasa.gov/Contest/Results/2011/HYPERION.pdf | 4 torii, 2 small, 2 large, diameter = major radius *2 of large torii, length = minor radius *2 of large torii, Ames Contest Grand Prize Winner | yes | no |
| 36 | Kon Tiki ISV | 2012 | Gitten et al | contemporary | 213,000,000 | | 1,200 | Interstellar | 669 | 250 | Torus | fusion/mhd | 1g | 1.51 | http://settlement.arc.nasa.gov/Contest/Results/2012/KonTiki.pdf | Interstellar Cycler Colony, aka quasi generation ship, diameter refers to habitat torus, length refers to central acceleration truss, Ames Contest grand prize winner | yes | no |
| 37 | Aurora | 2012 | Tudor Vianu HS | contemporary | 251,209,490 | | 16,000 | L4 | 1782 | | Torus | solar | 1g | | http://settlement.arc.nasa.gov/Contest/Results/2012/aurora__cnitv.pdf | Ames Contest grand prize winner | yes | no |
| 38 | Maui | 2013 | Gitten et al | contemporary | | 25,900,000 | 10,001 | Saturn Orbit | 1400 | 1750 | Torus | fusion | 1g | 1.31 | http://settlement.arc.nasa.gov/Contest/Results/2013/Maui.pdf | Very speculative, phased H3 mining colony in Saturn orbit in 22nd century, Ames Contest grand prize winner | yes | no |
| 39 | Greenspace | 2014 | Kovachev et al | contemporary | | | | | | | Torus | solar/fusion | | | http://settlement.arc.nasa.gov/Contest/Results/2014/GREENSPACE.pdf | Ames Contest grand prize winner | yes | no |
| 40 | Vona | 2014 | Singh et al | contemporary | 485,365,039 | | 16,640 | Mars Orbit | 1544 | 270 | Torus | solar | 1g | 0.903 | http://settlement.arc.nasa.gov/Contest/Results/2014/VONA.pdf | Will fund by selling asteroid resources, diameter = major radius x 2, length = minor radius x 2, Ames Contest Grand Prize winner | yes | no |
| 41 | Freyr | 2015 | Reeves | contemporary | 140,000,000 | >1,620,000 | 20,000 | Moon Orbit | 830 | 200 | Torus | fission | 1g | 1.409 | http://settlement.arc.nasa.gov/Contest/Results/2015/areeves_Freyr.pdf | Diameter = major radius x 2, length = minor radius x 2, Ames Contest Grand Prize winner | yes | no |
| 42 | Divinity | 2016 | Do et al | contemporary | | | 10,000 | ELEO | 400 | 65 | Torus | fission | 1g | 2.114 | http://settlement.arc.nasa.gov/Contest//Results/2016/ProjectDivinity.pdf | Diameter = diameter of torus, length is width of torus. | yes | no |
| 43 | Kalpana Two | 2016 | Globus and Versteeg | contemporary | | | | | | 100 | Torus | solar | | | | there are actually four Kalpana designs: One through Four Two is the smaller one Bryan did the model for. | no | yes |
| 44 | Kalpana Three | 2016 | Globus | contemporary | | <x | | ELEO | | | Torus | solar | | | | there are actually four Kalpana designs: One through Four Three is the same as One but in ELEO with no shielding. | no | yes |
| 45 | Kalpana Four | 2016 | Globus | contemporary | | | | | | 50 | Torus | solar | | | | there are actually four Kalpana designs: Four is similar to Two but has a 50 m length rather than 100. | no | yes |
| 46 | StarPort 1 | 2016 | International Space Univ. | contemporary | | 10,000 | 200 | LEO | | | Torus | fission | 0.8g | | https://isulibrary.isunet.edu/opac/doc_num.php?explnum_id=1121 | commissioned/sponsored by Axiom Space; a startup commercial space station module development company | no | no |
| 47 | Avalon | 2017 | British Interplanetary Society | contemporary | | | | | | | | | | | | BIS rep says design will be out in 2017 | | |
| 48 | SSI Mailing List | ? | Eric Drexler? | unknown | | | | | 200 | | | | | | http://ssi.org/assets/images/Ch06p086.gif, http://ssi.org/assets/images/Ch06p088 | reached out to Eric Drexler via email to get more information | | |