

Deck Concept of the Sphere Space Station Earth ONE

7.2.1 Deck Concept of the Sphere Space Station Earth ONE

7.2.1.1 Realistic Volume Calculation and Deck Allocation

7.2.1.1.1 Volume Breakdown per Deck Updated breakdown of deck functions, with consideration for energy generation and cooling needs:

1. **Living/Residential Areas:** Decks 006–010, with 1 g gravity for residential stability.
2. **Hospitality/Recreation Areas:** Decks 007–009, with recreational amenities for crew well-being.
3. **Agricultural Areas:** Decks 005 and 011, with optimized sunlight exposure and gravity for agriculture.
4. **Propulsion Room:** Centralized on Decks 000–001 for optimal balance.
5. **Energy Supply:**
 - **Nuclear Reactors:** Located on Deck 015, with integrated shielding and cooling near the outer hull.
 - **Solar Panels:** Mounted on outer hull above Deck 12, covering non-windowed sections for maximum efficiency.
6. **Life Support System Room:** Decks 002–003, with recycling systems and emergency air/water storage.
7. **Command Room:** Deck 008 for centralized operations.
8. **Operational Areas:** Decks 004 and 009 for administration and support functions.
9. **Research Areas:** Decks 010–012 for laboratories and scientific spaces.
10. **Educational Spaces:** Deck 013, with classrooms and facilities for younger occupants.
11. **Kindergarten and Play Spaces:** Deck 013, adjacent to educational spaces.
12. **Workspaces:** Deck 014 for manufacturing, repair, and maintenance.
13. **Fuel Storage Room:** Deck 015, isolated from living areas for safety.
14. **Community Spaces:** Decks 006–007, for communal dining and events.
15. **Medical Facilities:** Deck 012 with full healthcare services.
16. **Hazard Management Rooms:** Deck 015 for emergency response systems.
17. **Escape Pod Areas:** Strategically located across multiple decks.

7.2.1.1.2 Volume Calculations and Net Space by Function Detailed allocation of net usable volume for each type of room based on overall station volume and safety priorities:

Room Type	Assigned Decks	Net Volume (m ³)	Notes
Living/Residential	Decks 006–010	200,000	Close to Earth gravity, suitable for habitation
Hospitality/Recreation	Decks 007–009	50,000	Includes gyms, lounges, entertainment facilities
Agricultural	Decks 005, 011	80,000	Hydroponic and aeroponic systems

Room Type	Assigned Decks	Net Volume (m ³)	Notes
Propulsion	Decks 000-001	40,000	Nuclear or advanced propulsion tech
Energy Supply	Deck 015	60,000	Nuclear reactors and solar support
Life Support Systems	Decks 002-003	30,000	Recycling and backup storage
Command	Deck 008	10,000	Command and control center
Operational	Decks 004, 009	25,000	Administration and operational support
Research	Decks 010-012	45,000	Specialized laboratories
Educational	Deck 013	15,000	Schools and educational facilities
Medical Facilities	Deck 012	10,000	Medical center
Hazard Management	Deck 015	10,000	Emergency systems and hazard control
Escape Pods	Multiple decks	15,000	Strategically positioned for accessibility

7.2.1.2 Sources No external sources used.