7.6.1.1 Guideline Document: Evolution-Engineering-Naming-Folder Convention

Version: 1.0.0 **Date:** 2025-08-10 **Status:** REVIEW

> Goal: Traceable, machine-sortable, version-safe documentation for a large-scale, multi-generation system. This makes **Evolution (EVOL) a first-class organizing principle** and aligns naming, foldering, and governance with product-generation thinking.

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1) Scope & Core Principles

Scope: all engineering files under `7.6-engineering/`, including active evolutions and frozen history.

Principles:

- **Evolution-first:** Each product generation (EVOL-XX) is a self-contained, auditable capsule (architecture, specs, tests, ops). Breaking architectural changes open a **new EVOL**.
- **SSOT:** Single Source of Truth – exactly one **APPROVED** reference document per topic per EVOL.
- **Traceability:** Requirements → Interfaces → Verification. Every change references RFC/CR/ADR.
- **Readability & Sortability:** Short codes, fixed order, leading zeros, ISO date, SemVer, kebab-case titles.
- **Stability:** Discipline/System codes and folder schema are controlled; changes only via RFC.
- **Auditability:** History is frozen, signed/tagged, and never rewritten.

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2) Folder Structure (Top-Down)

```
7.6-engineering/
├─ 7.6.1-global-standards/            # company-wide conventions, checklists, templates
├─ 7.6.2-evolutions/                  # active working evolutions
│  ├─ EVOL-01/
│  │  ├─ 00-standards-templates/      # EVOL-local templates (may refine global ones)
│  │  ├─ 01-architecture/             # system architecture, ADRs
│  │  ├─ 02-specs/                    # SRS, SPEC, ICD, SAF, HAZ, VVP ...
│  │  ├─ 03-interfaces/               # mechanical/electrical/software
│  │  ├─ 04-calculations/             # spreadsheets, proofs, substantiation
│  │  ├─ 05-models-cad-sim/           # CAD, FEM/CFD/simulation
│  │  ├─ 06-tests-verification/       # V&V plans/reports, acceptance
│  │  ├─ 07-ops-maintenance/          # operations, maintenance, SOPs
│  │  └─ 08-change-management/        # RFC/CR/approvals (referenced by all docs)
│  │  └─ readme.md                    # The readme.md of the evolution
│  └─ current-evolution.md            # contains an url to the current evolution's readme.
└─ 7.6.3-history/                     # frozen, superseded evolutions (read-
only)
   └─ EVOL-00/
      ├─ 00-standards-templates/
      ├─ 01-architecture/
      ├─ 02-specs/
```

```
├─ 03-interfaces/
├─ 04-calculations/
├─ 05-models-cad-sim/
├─ 06-tests-verification/
├─ 07-ops-maintenance/
└─ 08-change-management/
```

README per folder: purpose, index, mandatory links (relevant ADR/RFC/TST) and ownership.

Evolution Charter (`EVOL-XX/README.md`) must include: scope & goals, compatibility promises, key risks, ADR index, exit criteria for freeze.

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3) Evolution Lifecycle

1. **Initiate EVOL-XX** (charter, owners, scope).
2. **Work** (docs evolve under `7.6.2-evolutions/EVOL-XX`).
3. **Release** (tag `EVOL-XX-YYYY.MM`, set document states; symlink `current` may advance).
4. **Freeze & Archive** (move EVOL-XX to `7.6.3-history/`; read-only; security/Legal notes only).

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4) File-Naming Scheme (per document)

`<DOC>-<EVOL>-<DISC>-<SYS>-<SYSID>-<SEQ>-<TITLE>-<LANG>-v<MAJOR.MINOR.PATCH>[<PRERELEASE>][`

Field definitions:

- `DOC` (document type): **SPEC**, **SRS**, **ICD**, **ADR**, **RFC**, **CR**, **TST**, **CALC**, **DRAW**, **BOM**, **SOP**, **SAF**, **HAZ**, **VVP**.
- `EVOL` (evolution line): **00**, **01**, **02** … (product generation). Must match the parent `EVOL-XX` directory.
- `DISC` (discipline): **ARCH**, **STR**, **THM**, **PWR**, **ECLS**, **SAF**, **GNC**, **PROP**, **OPS**, **ELEC**, **SW**.
- `SYS` (system/subsystem examples): **CORE**, **HULL**, **DECKS**, **REACTOR**, **RAD**, **PDN**, **LHS**, **DOCK**, **LIFT**, **AIR**, **WAT**, **WASTE**, **COMMS**.
- `SYSID` (system reference): **DOCK01** … **DOCK05**, or **DECK000** … **DECK015**, or **ALL**, or **[A SPECIFIC SYSTEM]**….
- `SEQ` (sequential number per combination, e.g. multiple documents per unit): **0001**, **0002** …
- `TITLE` (kebab-case, ≤ 8 words).
- `LANG`: **DE**, **EN**.
- `v<MAJOR.MINOR.PATCH>`: **SemVer** (see §5).
- `<PRERELEASE>` (optional): `-alpha.1`, `-beta.2`, `-rc.1`.
- `+<BUILD>` (optional): e.g., `+20250810`, `+git.abcdef`.
- `STATE` (optional, workflow status): **DRAFT**, **REVIEW**, **APPROVED**, **OBSOLETE**.

Examples:

```
SPEC-01-STR-DECKS-DECK000-0001-wormhole-docking-tunnel-EN-v1.0.0-DRAFT.md
ICD-01-THM-RAD-ALL-0044-radiator-icd-ports-DE-v1.3.0-REVIEW.md
ADR-01-ARCH-CORE-ALL-0003-spin-rate-baseline-EN-v1.0.0.md
RFC-01-SAF-REACTOR-DECK015-0007-shielding-upgrade-EN-v0.3.0-alpha.2.md
```

Lint rule: directory `EVOL-XX` and filename `EVOL` **must match**; PRs failing this are rejected.

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5) Versioning (SemVer) & Document States

SemVer: `MAJOR.MINOR.PATCH`

- **EVOL vs. MAJOR:** Breaking **architectural** changes (cross-cutting, system-wide) create a **new EVOL**. Within a given EVOL, use **MAJOR** for incompatible changes that remain scoped to that EVOL (e.g., an ICD break that does not warrant a new generation).
- **MINOR:** backward-compatible additions (new sections/requirements, clarifications).
- **PATCH:** editorial fixes (typos, formatting, non-semantic wording).
- **Prerelease:** `-alpha.N`, `-beta.N`, `-rc.N` until release.
- **Build:** `+YYYYMMDD` or `+git.<shortsha>` optional.

States: `DRAFT` → `REVIEW` (≥ 2 reviewers) → `APPROVED` (SSOT) → `OBSOLETE` (replaced). Transition to **APPROVED** requires a linked RFC/CR and a verification reference if applicable.

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6) Required YAML Front Matter

Every file starts with YAML front matter:

```yaml
---
id: SPEC-01-STR-DECKS-DECK000-0001
title: Wormhole Docking Tunnel — Structural Specification
version: v1.0.0
state: DRAFT
evolution: "01"
discipline: STR
system: [DECK]
system_id: [DECK000]
seq: [1111]
owner: "structure-architecture"
reviewers: ["safety-core", "operations"]
source_of_truth: true
supersedes: null
superseded_by: null
rfc_links: ["RFC-2025-0007"]
adr_links: ["ADR-01-ARCH-CORE-ALL-0003"]
cr_links: []
date: 2025-08-10
lang: EN
---
<empty-line>
```

---

7) Change Management

- **RFC ID:** `RFC-YYYY-####` (e.g., `RFC-2025-0007`). Content: change, motivation, impact, migration, participants, decision.
- **CR ID:** `CR-YYYY-####` for implementation packages.
- **Process:** Issue → RFC (review) → decision → implementation (CR/PR) → update docs → test/accept → state change.
- **Superseding:** Old doc sets `superseded_by`, new doc sets `supersedes`. On EVOL freeze, move whole `EVOL-XX` to `7.6.3-history/`.
- **Tags:** On release/freeze, tag repo `EVOL-01-YYYY.MM` and record checksum of key artifacts (ICDs, SPECs, models, TST reports).

---

8) Commit Messages & PR Titles

Format:

```
[<DOC>][<DISC>][<SYS>][<DECK>][EVOL-XX] short summary

Body:
- why: motivation/issue link
- what: key changes
- impact: backward compat / risks
- refs: RFC/ADR/CR IDs
```

Example:

```
[SPEC][STR][DECKS][DECK000][EVOL-01] define hatch tolerances v1.1.0

why: close gaps from TST-... results
what: ±0.2 mm tolerance band, update figs 2–4
impact: compatible; requires retest case 2
refs: RFC-2025-0009, ADR-01-ARCH-CORE-ALL-0003
```

---

9) CODE Tables (governed via RFC)

9.1 Document Types (`DOC`) SPEC, SRS, ICD, ADR, RFC, CR, TST, CALC, DRAW, BOM, SOP, SAF, HAZ, VVP

9.2 Disciplines (`DISC`) ARCH – Architecture/System; STR – Structures/Mechanics; THM – Thermal; PWR – Energy/Power; ECLS – Life Support; SAF – Safety; GNC – Guidance, Navigation & Control; PROP – Propulsion; OPS – Operations; ELEC – Electrical; SW – Software

9.3 Systems (`SYS`) – selection CORE, HULL, DECKS, REACTOR, RAD, PDN, LHS, DOCK, LIFT, AIR, WAT, WASTE, COMMS

9.4 Deck IDs (`DECK`) DECK000 … DECK015; ALL for cross-deck.

9.5 States (`STATE`) DRAFT, REVIEW, APPROVED, OBSOLETE.

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10) Templates (Short Forms)

> Full templates are in `7.6.1-global-standards/` (global) and may be refined under `7.6.2-evolutions/EVOL-XX/00-standards-templates/`.

10.1 SPEC (Markdown)

```
---
# (YAML front matter as in §6)
---
```

```
# 1. Purpose & Context
# 2. Scope
# 3. Terms & References
# 4. Requirements (SPEC-REQ-001 …)
# 5. Constraints & Assumptions
# 6. Verification (SPEC-REQ ↔ test cases)
# 7. Risks & Safety Notes
# 8. Change History
```

10.2 ICD

```
---
# (YAML front matter as in §6)
---

# 1. Interface Overview
# 2. Mechanical (coordinates, tolerances, drawings)
# 3. Electrical (pins, voltages, signals)
# 4. Software/Protocol (frames, timing)
# 5. States & Failure Cases
# 6. Tests (conformance)
# 7. Change History
```

10.3 ADR

```
---
# (YAML front matter as in §6)
---

# Context
# Decision
# Consequences
# Alternatives
# References (RFC, SPEC)
```

10.4 RFC

```
---
# (YAML front matter as in §6)
---

# Problem & Motivation
# Proposal (high level)
# Impact (technology, risk, cost)
# Compatibility & Migration
# Review Plan & Owner
# Decision (date, participants)
```

10.5 TST (Test Report)

```
---
# (YAML front matter as in §6)
---
```

```
# Test Objective
# Test Environment
# Test Cases (ID, steps, expectation)
# Results & Evidence
# Deviations / Non-Conformities
# Conclusion & Approval
```

10.6 CALC

```
---
# (YAML front matter as in §6)
---

# Assumptions & Parameters (with sources)
# Derivation / Methodology
# Calculation Steps (formulae, units)
# Results (tables / graphs)
# Sensitivity & Uncertainties
# Correlation with Measurement / Simulation
```

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11) Quality Rules

- One topic per document; split and cross-link large topics.
- Number all tables/figures; reference them in text; SI units with proper prefixes.
- Every numeric claim has a derivation/source; plots have axis labels & units.
- No “silent overwrites”: every change via RFC/CR; states updated accordingly.
- EVOL encapsulation: avoid cross-EVOL dependencies; shared assets only when truly identical and versioned.

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12) Automation & CI

- **Linting:** enforce filename schema ↔ front matter consistency (EVOL, DISC, SYS, DECK, LANG, STATE).
- **Tagging:** generate `EVOL-XX-YYYY.MM` tags and a signed manifest of key artifacts.
- **Compare Pages:** auto-build “EVOL-00 ↔ EVOL-01” diffs for ICDs/SPECs; publish in docs.

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13) Appendix CI/LINT

CI/LINT: Filename Regex & Cross-Checks Filename Regex:

```
^(SPEC|SRS|ICD|ADR|RFC|CR|TST|CALC|DRAW|BOM|SOP|SAF|HAZ|VVP)-\d{2}-[A-Z]{2,4}-
[A-Z0-9]+-[A-Z0-9]+-\d{4}-[a-z0-9-]{1,80}-(DE|EN)-v\d+\.\d+\.\d+(?:-(alpha|beta|rc)\.\d+)?
(DRAFT|REVIEW|APPROVED|OBSOLETE))?\.md$
```

Linting Cross-Checks:

- EVOL in the directory path **must match** EVOL in the filename.
- YAML front-matter fields (e.g., `id`, `evolution`, `discipline`, `system`, `system_id`, `seq`, `lang`, `state`) **must match** corresponding filename segments.
- `state` field and filename suffix (e.g., `-DRAFT`, `-REVIEW`) **must be consistent**.

14) Appendix 14 – Glossary (Abbreviations) / Appendix 14 – Glossar (Abkürzungen)

This glossary consolidates **all abbreviations, codes, and fields** used in the guideline “Evolution-Engineering-Naming-Folder Convention” – incl. short description and category. Languages: **EN (English) / DE (Deutsch)**.

Dieses Glossar bündelt **alle Abkürzungen, Codes und Felder**, die in der Guideline »Evolution-Engineering-Naming-Folder Convention« verwendet werden – inkl. Kurzbeschreibung und Kategorie. Sprachen: **EN (English) / DE (Deutsch)**.

As of / Stand: 2025-08-10 · **Source / Quelle:** Guideline 7.6.1.1 and project context 7.6-engineering

14.1 Process & Governance / Prozess & Governance

Code	Long form (EN)	Langform (DE)	Description (EN)	Beschreibung (DE)
EVOL	Evolution / Product Generation	Evolution / Produktgeneration	Product generation (EVOL-00, -01 …). New EVOL when the architecture changes system-wide.	Produktgeneration (EVOL-00, -01 …). Neue EVOL bei systemweiten Architekturbrüchen.
SSOT	Single Source of Truth	Single Source of Truth	Exactly one APPROVED reference document per topic & EVOL.	*Genau ein* APPROVED-Referenzdokument pro Thema & EVOL.
RFC	Request for Comments	Request for Comments	Formal change idea/decision brief (RFC-YYYY-####).	Formale Änderungsidee/Entscheidungsvorlage (RFC-YYYY-####).
CR	Change Request	Change Request	Implementation package for an approved RFC (CR-YYYY-####).	Umsetzungspaket zu einem beschlossenen RFC (CR-YYYY-####).
ADR	Architecture Decision Record	Architecture Decision Record	Architecture decision (context, decision, consequences).	Architekturentscheidung (Kontext, Entscheidung, Konsequenzen).
PR	Pull Request	Pull Request	Code/docs change for review/integration.	Code/Docs-Änderung zur Review/Integration.
CI	Continuous Integration	Continuous Integration	Automated checks (lint, build, diffs, manifests).	Automatisierte Checks (Lint, Build, Diffs, Manifeste).
LINT	Linting	Linting	Rules/checks for filenames, front-matter, consistency.	Regeln/Prüfungen für Dateinamen, Front-Matter, Konsistenz.
V&V	Verification & Validation	Verification & Validation	Verification/validation: evidence against requirements.	Verifikation/Validierung: Nachweis gegen Anforderungen.

14.2 File-Name Schema (Fields & States) / Dateinamen-Schema (Felder & Stati)

Code	Long form (EN)	Langform (DE)	Description (EN)	Beschreibung (DE)
DOC	Document type	Dokumenttyp	e.g., SPEC, SRS, ICD, ADR, RFC, CR, TST, CALC, DRAW, BOM, SOP, SAF, HAZ, VVP.	z. B. SPEC, SRS, ICD, ADR, RFC, CR, TST, CALC, DRAW, BOM, SOP, SAF, HAZ, VVP.
EVOL	Evolution	Evolution	Two digits (00, 01 …); must match folder *EVOL-XX*.	Zweistellig (00, 01 …); muss zum Ordner *EVOL-XX* passen.
DISC	Discipline	Disziplin	ARCH, STR, THM, PWR, ECLS, SAF, GNC, PROP, OPS, ELEC, SW.	ARCH, STR, THM, PWR, ECLS, SAF, GNC, PROP, OPS, ELEC, SW.
SYS	System	System	CORE, HULL, DECKS, REACTOR, RAD, PDN, LHS, DOCK, LIFT, AIR, WAT, WASTE, COMMS.	CORE, HULL, DECKS, REACTOR, RAD, PDN, LHS, DOCK, LIFT, AIR, WAT, WASTE, COMMS.
SYSID	System ID	System-ID	Concrete unit (e.g., DOCK01…05, DECK000…015, ALL …).	Konkrete Einheit (z. B. DOCK01…05, DECK000…015, ALL …).
SEQ	Sequence	Sequenz	Four digits (0001…); running number per (DOC,EVOL,DISC,SYS,SYSID).	Vierstellig (0001…); laufende Nummer pro (DOC,EVOL,DISC,SYS,SYSID).
TITLE	Title (kebab-case)	Titel (kebab-case)	≤ 8 words, technically concise.	≤ 8 Wörter, technisch prägnant.
LANG	Language	Sprache	DE, EN.	DE, EN.
STATE	Document state	Dokumentstatus	DRAFT → REVIEW → APPROVED → OBSOLETE.	DRAFT → REVIEW → APPROVED → OBSOLETE.
SemVer	Semantic Versioning	Semantic Versioning	vMAJOR.MINOR.PATCH (prerelease/build optional).	vMAJOR.MINOR.PATCH (Prerelease/Build optional).
Pre-release	Pre-release tag	Vorab-Kennung	-alpha.N, -beta.N, -rc.N.	-alpha.N, -beta.N, -rc.N.
Build	Build metadata	Build-Metadaten	+YYYYMMDD, +git. …	+YYYYMMDD, +git. …

Document Types (DOC) / Dokumenttypen (DOC)

Code	Long form (EN)	Langform (DE)	Short description (EN)	Kurzbeschreibung (DE)
SPEC	Specification	Spezifikation	Requirements & technical provisions.	Anforderungen & technische Vorgaben.
SRS	Software Requirements Specification	Software Requirements Spec	Software requirements.	Software-Anforderungen.

Code	Long form (EN)	Langform (DE)	Short description (EN)	Kurzbeschreibung (DE)
ICD	Interface Control Document	Interface Control Document	Interfaces (mech./electr./SW).	Schnittstellen (mech./elektr./SW).
ADR	Architecture Decision Record	Architecture Decision Record	Architecture decision.	Architekturentscheidung.
RFC	Request for Comments	Request for Comments	Change proposal/decision.	Änderungsvorschlag/Entscheidung.
CR	Change Request	Change Request	Implementation order/package.	Umsetzungsauftrag/-paket.
TST	Test Report / Test Spec	Test Report / Test Spec	Test plan/report (V&V).	Prüfplan/-bericht (V&V).
CALC	Calculation	Calculation	Calculations, derivations, substantiation.	Berechnungen, Herleitungen, Substantiation.
DRAW	Drawing	Drawing	Drawings/plots.	Zeichnungen/Plots.
BOM	Bill of Materials	Bill of Materials	Parts list.	Stückliste.
SOP	Standard Operating Procedure	Standard Operating Procedure	Operating/work instruction.	Betriebs-/Arbeitsanweisung.
SAF	Safety Dossier	Safety Dossier	Safety evidence.	Sicherheit/Safety-Nachweise.
HAZ	Hazard Analysis	Hazard Analysis	Hazard/risk analysis.	Gefährdungs-/Risikoanalyse.
VVP	Verification & Validation Plan	Verification & Validation Plan	V&V plan/coverage.	V&V-Plan/Abdeckung.

Disciplines (DISC) / Disziplinen (DISC)

Code	Long form (EN)	Langform (DE)
ARCH	Architecture & Systems	Architektur / Architecture & Systems
STR	Structures & Mechanics	Strukturen / Structures & Mechanics
THM	Thermal	Thermik / Thermal
PWR	Power	Energie / Power
ECLS	Environmental Control & Life Support	Umweltkontrolle & Lebenserhalt / Environmental Control & Life Support
SAF	Safety	Sicherheit / Safety
GNC	Guidance, Navigation & Control	Lageführung, Navigation & Regelung / Guidance, Navigation & Control
PROP	Propulsion	Antrieb / Propulsion
OPS	Operations	Betrieb / Operations
ELEC	Electrical	Elektrik/Elektronik / Electrical
SW	Software	Software

Systems (SYS – selection) / Systeme (SYS – Auswahl)

Code	Long form (EN)	Langform (DE)	Note (EN)	Hinweis (DE)
CORE	Core	Kernsystem		
HULL	Hull	Hülle		
DECKS	Decks	Decks		
REAC-TOR	Reactor	Reaktor		
RAD	Radiator System	Radiatoren		
PDN	Power Distribution Network	Power Distribution Network	Power grid.	Stromverteilnetz.
LHS	Life Support System	Life Support System	↔ ECLS.	Lebenserhaltung (↔ ECLS).
DOCK	Dock	Docking / Dock		
LIFT	Lifts	Aufzüge		
AIR	Air systems	Luftsysteme		
WAT	Water systems	Wassersysteme		
WASTE	Waste / Disposal	Abfall/Entsorgung		
COMMS	Communications	Kommunikation		

States / Status (STATE): DRAFT · REVIEW · APPROVED · OBSOLETE

14.3 Front-Matter (YAML fields) / Front-Matter (YAML-Felder)

Field	Bedeutung (DE)	Meaning (EN)
id	Stabile ID = —–	Stable ID = —–
title	Volltitel des Dokuments	Full document title
version	SemVer inkl. v-Präfix	SemVer incl. v-prefix
state	DRAFT/REVIEW/APPROVED/OBSOLETE	DRAFT/REVIEW/APPROVED/OBSOLETE
evolution	EVOL als String (“01”)	EVOL as string (“01”)
discipline	DISC-Code (z. B. STR)	DISC code (e.g., STR)
system / system_id	System(e) / Instanz(en)	System(s) / instance(s)
seq	Sequenz (Array, vierstellig)	Sequence (array, four digits)
owner	Owner/Handle (z. B. structure-architecture)	Owner/handle (e.g., structure-architecture)
reviewers	Reviewer-Handles	Reviewer handles
source_of_truth	true = SSOT-Dokument	true = SSOT document
supersedes / superseded_by	Ersetzt / wird ersetzt von	Supersedes / superseded by
rfc_links / adr_links / cr_links	Referenzen auf RFC/ADR/CR	References to RFC/ADR/CR
date	ISO-Datum (YYYY-MM-DD)	ISO date (YYYY-MM-DD)
lang	DE/EN	DE/EN

14.4 Orbits, Mission & Physics (Project Context) / Orbits, Mission & Physik (Projektkontext)

Code	Long form (EN)	Langform (DE)	Description (EN)	Beschreibung (DE)
LEO	Low Earth Orbit	Niedriger Erdorbit	Low Earth orbit.	Niedriger Erdorbit.
GEO	Geostationary Orbit	Geostationärer Orbit	Geostationary orbit.	Geostationärer Orbit.
GTO	Geostationary Transfer Orbit	Geostationary Transfer Orbit	Transfer orbit to GEO.	Transferbahn zu GEO.
L1/L2	Lagrange Points	Lagrange-Punkte	Equilibrium points in two-body systems.	Gleichgewichtspunkte in Zwei-Körper-Systemen.
Δv / dv	Delta-v / Change in Velocity	Delta-v / Geschwindigkeit-sänderung	Velocity change needed for maneuvers.	Geschwindigkeitsän-derung für Manöver.
Isp	Specific Impulse	Spezifischer Impuls	Efficiency metric for engines.	Effizienzmaß für Triebwerke.

14.5 Energy & Propulsion (Project Context) / Energie & Antrieb (Projektkontext)

Code	Long form (EN)	Langform (DE)	Description (EN)	Beschreibung (DE)
SMR	Small Modular Reactor	Small Modular Reactor	Compact nuclear reactor (e.g., NuScale 60 MW).	Kompakter Kernreaktor (z. B. NuScale 60 MW).
NEP	Nuclear Electric Propulsion	Nuclear Electric Propulsion	Nuclear-electric propulsion (high Isp, low thrust).	Nuklear-elektrischer Antrieb (hoher Isp, niedriger Schub).
NTP	Nuclear Thermal Propulsion	Nuclear Thermal Propulsion	Nuclear-thermal propulsion (high thrust).	Nuklear-thermischer Antrieb (hoher Schub).
SEP	Solar Electric Propulsion	Solar Electric Propulsion	Solar-electric propulsion.	Solar-elektrischer Antrieb.
MLI	Multi-Layer Insulation	Multi-Layer Insulation	Multi-layer thermal insulation.	Mehrlagige Wärmedämmung.

14.6 Operations, Safety & Systems (Project Context) / Betrieb, Sicherheit & Systeme (Projektkontext)

Code	Long form (EN)	Langform (DE)	Description (EN)	Beschreibung (DE)
EVA	Extravehicular Activity	Außeneinsatz	Work outside the station.	Arbeiten außerhalb der Station.
RCS	Reaction Control System	Reaction Control System	Attitude/fine-maneu-ver thrusters.	Lage-/Fein-manöver-Triebw-erke.

Code	Long form (EN)	Langform (DE)	Description (EN)	Beschreibung (DE)
SOP	Standard Operating Procedure	Standard Operating Procedure	Standard operating procedures.	Standard-Betriebsverfahren.
HAZ	Hazard Analysis	Hazard Analysis	Hazard analysis.	Gefährdungsanalyse.
SAF	Safety Dossier	Safety Dossier	Safety evidence/records.	Sicherheitsnachweise.

14.7 Materials & Windows (Project Context) / Materialien & Fenster (Projektkontext)

Code	Long form (EN)	Langform (DE)	Description (EN)	Beschreibung (DE)
SiC	Silicon Carbide	Siliziumkarbid	Structure/protection, very hard/heat-resistant.	Struktur/Schutz, sehr hart/hitzefest.
ALON	Aluminum Oxynitride	Aluminium-Oxynitrid	Transparent ceramic armor/window material.	Transparentes Keramik-Panzer-/Fenstermaterial.
FEM	Finite Element Method	Finite-Elemente-Methode	Structural/strength analysis.	Struktur-/Festigkeitsanalyse.
CFD	Computational Fluid Dynamics	Computational Fluid Dynamics	Flow simulation.	Strömungssimulation.
CAD	Computer-Aided Design	Computer-Aided Design	Design data/models.	Konstruktionsdaten/Modelle.

14.8 Communication & Outreach / Kommunikation & Öffentlichkeitsarbeit

Code	Long form (EN)	Langform (DE)	Description (EN)	Beschreibung (DE)
STEM	Science, Technology, Engineering, Mathematics	Science, Technology, Engineering, Mathematics	Education/outreach context.	Bildungs-/Outreach-Kontext.
VR/AR	Virtual/Augmented Reality	Virtual/Augmented Reality	Immersive visualization.	Immersive Visualisierung.

14.9 Governance & Alliances / Governance & Allianzen

Code	Long form (EN)	Langform (DE)	Description (EN)	Beschreibung (DE)
IDSA	International Democratic Solar Alliance	International Democratic Solar Alliance	Proposed solar governance.	Vorgeschlagene Solar-Governance.

14.10 Languages, Units & Format / Sprachen, Einheiten & Format

Code	Long form (EN)	Langform (DE)	Description (EN)	Beschreibung (DE)
DE / EN	German / English	Deutsch / English	Language codes.	Sprachcodes.
SI	Système International	Système International	Unit system (with prefixes).	Einheitensystem (mit Präfixen).
ISO Date	ISO Date	ISO-Datum	YYYY-MM-DD.	YYYY-MM-DD.
kebab-case	–	–	Lowercase words, hyphens in titles.	Kleinbuchstaben, Bindestriche in Titeln.

14.11 Examples (Reference) / Beispiele (Referenz)

```
SPEC-01-STR-DECKS-DECK000-0001-wormhole-docking-tunnel-EN-v1.0.0-DRAFT.md
ICD-01-THM-RAD-ALL-0044-radiator-icd-ports-DE-v1.3.0-REVIEW.md
ADR-01-ARCH-CORE-ALL-0003-spin-rate-baseline-EN-v1.0.0.md
RFC-01-SAF-REACTOR-DECK015-0007-shielding-upgrade-EN-v0.3.0-alpha.2.md
```

> **Note (EN):** EVOL in the path **must** match EVOL in the file name; front-matter fields and the STATE suffix are lint-checked.
>
> **Hinweis (DE):** EVOL im Pfad **muss** mit EVOL im Dateinamen übereinstimmen; Front-Matter-Felder und Suffix-STATE werden per Lint geprüft.

End Appendix 14 – Glossary (Abbreviations) / Ende Appendix 14 – Glossar (Abkürzungen).

End of document.