

DEP SPECIFICATION

STRUCTURED CABLING SYSTEMS FOR TELECOMMUNICATIONS

DEP 32.71.00.30-Gen.

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DESIGN AND ENGINEERING PRACTICE



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The information set forth in these publications is provided to Shell companies for their consideration and decision to implement. This is of particular importance where DEPs may not cover every requirement or diversity of condition at each locality. The system of DEPs is expected to be sufficiently flexible to allow individual Operating Units to adapt the information set forth in DEPs to their own environment and requirements.

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All administrative queries should be directed to the DEP Administrator in Shell GSI.

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1. INTRODUCTION

1.1 SCOPE

This DEP specifies requirements and gives recommendations for material specifications, installation practices, testing requirements and project deliverables for the design, supply, installation and commissioning of a structured cabling system for data and voice. This DEP is not intended to cover every aspect of equipment and facility practices, although key areas are highlighted. Building security, electricity, and telemetry requirements are specifically excluded from the scope of this DEP.

This DEP is a revision of the DEP 32.71.00.30-Gen., dated December 1998 and incorporates the contents of DEP 32.71.00.16-Gen., dated December 1997. See (1.5) regarding the changes.

This DEP supplements ISO/IEC 11801, ANSI/TIA/EIA 568-B, EIA/TIA 606, and other fundamental standards.

1.2 DISTRIBUTION, INTENDED USE AND REGULATORY CONSIDERATIONS

Unless otherwise authorised by Shell GSI, the distribution of this DEP is confined to Shell companies and, where necessary, to Contractors and Manufacturers/Suppliers nominated by them. Any authorised access to DEPs does not for that reason constitute an authorisation to any documents, data or information to which the DEPs may refer.

This DEP is intended primarily for office facilities as described in ISO/IEC 11801 and EIA/TIA 568. Other uses include oil refineries, gas handling installations, chemical plants, oil and gas production facilities, and supply/marketing installations. This DEP may also be applied in other similar facilities.

When DEPs are applied, a Management of Change (MOC) process shall be implemented; this is of particular importance when existing facilities are to be modified.

If national and/or local regulations exist in which some of the requirements could be more stringent than in this DEP, the Contractor shall determine by careful scrutiny which of the requirements are the more stringent and which combination of requirements will be acceptable with regards to the safety, environmental, economic and legal aspects. In all cases, the Contractor shall inform the Principal of any deviation from the requirements of this DEP which is considered to be necessary in order to comply with national and/or local regulations. The Principal may then negotiate with the Authorities concerned, the objective being to obtain agreement to follow this DEP as closely as possible.

1.3 DEFINITIONS

1.3.1 General definitions

The **Contractor** is the party that carries out all or part of the design, engineering, procurement, construction, commissioning or management of a project or operation of a facility. The Principal may undertake all or part of the duties of the Contractor.

The **Manufacturer/Supplier** is the party that manufactures or supplies equipment and services to perform the duties specified by the Contractor.

The **Principal** is the party that initiates the project and ultimately pays for it. The Principal may also include an agent or consultant authorised to act for, and on behalf of, the Principal.

The word **shall** indicates a requirement.

The word **should** indicates a recommendation.

1.3.2 Specific definitions

Term	Definition
Cable outlet	A fixed socket in a work area (office) where a horizontal cable terminates, typically serving a single user and a single piece of equipment (PC or telephone).
Cross-connect	A facility for the interconnection and termination of cabling.
Faceplate	The cosmetic flat assembly which covers the outlet box, usually located within the office or work area.
Faceplate blank	A solid faceplate used to cover an outlet box when no cable outlet is installed.
Hub	Active equipment which provides connectivity between a user's device and the LAN. The hub is situated in a central location on a floor connecting to the horizontal cables.
Multimode fibre	Usually powered by light emitting diodes. 62.5/125 micrometre means "core" is 62.5 micrometres (where the light travels), and the cladding is 125 micrometres (refractive glass to enclose light within transparent core and support the brittle core). EIA/TIA standards recommend distances less than 2 km.
Outlet box	A hollow receptacle, buried in a wall or floor. The outlet box receives conduits, encloses the cable outlet, and is covered by a faceplate.
Patch panel	A cross-connect system of mateable connectors that facilitates easy administration.
Plenum	A building space where environmental air moves but cables are allowed, for example a suspended ceiling.
Pull box	An accessible box mounted in the path of a conduit which can be opened to access the cables within the conduit. The pull box is used to pull cables through length(s) of conduit.
Service core	The part of the building carrying the services between floors and usually offering main structural support. The service core is usually in the centre of the floor and provides elevators, toilets, HVAC equipment, and electrical services.
Single mode fibre	Finer specifications than multimode (usually 8-9/125 micrometre) and currently more expensive. Single mode constrains the light "path", and is powered by lasers.
Sleeve	A usually circular opening through a wall, floor or ceiling to allow the passage of cables and wires.
Slot	A usually rectangular opening through a wall, floor or ceiling to allow the passage of cables and wires. Slots are not permitted
Work area	An office or space within a building where the occupants use computer and communication equipment. In an office building, this would be the office or desk area.
Work area cable	Extension cable running from the work area telecommunications outlet to the user equipment (telephone or PC).

1.3.3 Abbreviations

Term	Definition
ACR	Attenuation Cross-talk Ratio
ANEXT	Crosstalk that occurs between adjacent cables and connecting hardware.
AWG	American Wire Gauge measurement standard.
BFOC/2.5	Fibre optic cable connector, also known as an ST connector.
CAT 6	Standard for Gigabit Ethernet
CAT 6A	Enhanced performance Standard for Gigabit Ethernet (Augmented)
EIA	Electronic Industry Association
EMI	Electromagnetic interference
FDDI	Fibre Distributed Data Interface LAN running at 100 Mbps over multimode fibre optic cable.
FOIRL	Fibre Optic Inter Repeater Link standard for connecting devices such as hubs over fibre.
HVAC	Heating, Ventilation and Air Conditioning
IEEE	Institute of Electrical and Electronics Engineers
ISDN	Integrated Services Digital Network standard for digital telephony service.
IT	Information Technology. Refers either to a department providing computing services to the Principal, or to the discipline relating to computer and information technologies.
LAN	Local Area Network, a data communications system, with moderate to high data rates. Recently, the LAN has become the fundamental backbone of the entire IT infrastructure.
LDC	Local Distribution Centre - secondary wiring closet on a large area floor, where a single closet does not permit 90 m (295 ft) cable lengths.
Mbps	Mega (million) bits per second transmission speed.
MDF	Main Distribution Frame - telephony term for the main building cross-connect panel, terminating external cabling, riser cabling, and PABX cabling in a common location.
NEXT	Near-end Cross Talk, a measure of how much signal cross-couples between receive and transmit pairs.
NIDP	Network Interface Demarcation Point. Telephony term for interface between private network and the public network.
NVP	Nominal Velocity of Propagation
PABX	Private Automatic Branch Exchange. Also called PBX (Private Branch Exchange) or CBX (Computerised Branch Exchange). This is a private telephone switch serving many telephone handsets and limited access trunks to the carrier, and often adding functions like voice mail, inter-PABX routing, speed dialling, etc.
PC	Personal Computer
PVC	Polyvinylchloride, a material used for cable insulation. PVC is flammable and emits toxic fumes when in a fire.
RJ45	EIA/TIA and ISO standard 8-pin modular connector.

Term	Definition
ST connector	Fibre optic cable connector, also known in EIA/TIA standards as BFOC/2.5.
TDR	Time Domain Reflectometer, device that measures cable length and the distance to faults.
TIA	Telecommunications Industry Association, closely affiliated with EIA for cabling standards.
TSB	Technical Systems Bulletin, update to the EIA/TIA standards providing additional specifications.
UTP	Unshielded Twisted Pair cable (usually 4 pairs) without metal shielding.
WAN	Wide Area Network
10BaseT	IEEE 802.3 and ISO/IEC 8802-3 (Ethernet) LAN standard for UTP cables.
10BaseFX	Set of IEEE 802.3 and ISO/IEC 8802-3 (Ethernet) LAN standards for fibre optic cables.
568SC	Fibre optic cable connector, also known as a FDDI connector.

1.4 CROSS-REFERENCES

Where cross-references to other parts of this DEP are made, the referenced section number is shown in brackets (). Other documents referenced by this DEP are listed in (10).

1.5 SUMMARY OF MAIN CHANGES

This DEP is a revision of the DEP 32.71.00.30-Gen., dated December 1998 and incorporates the contents of DEP 32.71.00.16-Gen., dated December 1997.

The following are the main, non-editorial changes.

Section	Change
3.0	Cat 6a to be installed for all UTP cabling.
3.3	Multi-mode fiber for short haul, and single-mode for long distances

1.6 COMMENTS ON THIS DEP

Comments on this DEP may be submitted to the Administrator using one of the following options:

Shell DEPs Online (Users with access to Shell DEPs Online)	Enter the Shell DEPs Online system at https://www.shelldeps.com Select a DEP and then go to the details screen for that DEP. Click on the "Give feedback" link, fill in the online form and submit.
DEP Feedback System (Users with access to Shell Wide Web)	Enter comments directly in the DEP Feedback System which is accessible from the Technical Standards Portal http://www.shell.com/standards . Select "Submit DEP Feedback", fill in the online form and submit.
DEP Standard Form (Other users)	Use DEP Standard Form 00.00.05.80-Gen. to record feedback and email the form to the Administrator at standards@shell.com .

Feedback that has been registered in the DEP Feedback System by using one of the above options will be reviewed by the DEP Custodian for potential improvements to the DEP.

1.7 DUAL UNITS

This DEP contains both the International System (SI) units, as well as the corresponding US Customary (USC) units, which are given following the SI units in brackets. When agreed by the Principal, the indicated USC values/units may be used.

1.8 ORDER OF PRECEDENCE

The Contractor shall apply, in order of precedence, all local and national regulations, all modifications specified in the contract, this DEP, ISO/IEC 11801 and EIA/TIA 568A documents, and finally the product installation guidelines from the Manufacturer.