Contents

Foreword xii	BUILDING COMPONENTS	
BASICS	Foundations	22
	Building excavations	
Abbreviations and symbols1	Foundations	
SI units2	Tanking, basement drainage Repair	
Drawings	·	
Paper formats4	Walls	
Technical drawings5	Natural stone masonry	
Layout of drawings6	Brick and block masonry	75
Construction drawings7	Composite construction	78
Construction drawing symbols8	Repair	79
Water supply and drainage symbols,12	Floor Slabs	
Electrical installation symbols14	Slab construction	90
Security installation symbols	Refurbishment	
Gas installation symbols		
Drawing by hand19	Concrete repair	
Computer-aided drawing	Floors	
, c	Roofs	
Accessible Building	Roof shapes	85
Dimensions for wheelchair users21	Pitched roofs	86
Accessible public buildings22	Flat roofs	91
Accessible housing23	Milinglesse	
Dimensional Basics and	Windows	ne.
Relationships	Arrangement	
Man as measure and purpose26	Requirements	97
The universal standard27	Design types	
Body measurements and space requirements	Thermal insulation	
Geometrical relationships30	Sound insulation	
Dimensions in building	Cleaning buildings	
Difficusions in building	Loft windows	
Building Biology	Skylights and dome rooflights	103
Basics36	Glass	
Room climate	Basics	104
Electromagnetic fields	Insulated glazing	
•	Security and noise control glass	107
Visual Perception	Optically variable glass	
The eye	Cast glass	
Perception of colour41	Glass doors	
DESIGN PROCESS	Profiled glass	
DESIGN PROCESS	Glass blocks	
Design	Fire protection glazing	
What is design?42	Curtain walling	
Planes of reference43	Outtain waining	
Questionnaire44	Doors	
6 (1 11 B 112)	Arrangement	113
Sustainable Building	Constructional details	
General, design, construction	Special doors	115
Operation, demolition47	Garage/industrial doors	
Facility Management	Lock suites	117
Background48	Security of buildings and grounds	118
Methods	04-1	
	Stairs	120
Refurbishment	Principles	
Conservation and alteration50	Regulations	
Care of historic monuments51	Construction	122
Listed building protection52	Ramps, spiral stairs	123
Recording of old buildings53	Access and escape ladders	125
Conversion54	Escalators	
Design and Construction	For shops and offices	126
•		
Management Public building and planning law56	Moving Walkways	
Private building law, VOB, HOAI	For shops and offices	127
Mark phases	Lifts	
Work phases	Principles	128
Measures of building use	Control equipment	129
Setback areas	Passenger lifts for residential buildings	130
Construction costs	i asseriger into for residential ballangs	

Passenger lifts for offices, hotels, banks	131	Playgrounds	
Small goods lifts	132	Playground equipment	190
Hydraulic lifts	133	O-bi-	
Special lifts	134	Schools	404
•		General classrooms	
		Specialist classrooms	
RESIDENTIAL BUILDINGS		Information and communal area	193
Danian		Sanitary facilities, break and circulation area	194
Basics	405	Arrangement of classrooms, clusters	195
Design basics		Model room programmes for primary schools	196
House-building policy	136	Examples	
Housing Density		•	
Parameters	127	Universities and Colleges	
raiailleteis	107	Lecture theatres	198
Orientation		Examples of lecture theatres	200
Layout of buildings	138	Seating and projection	
		Seminar and service rooms	
Access		Laboratories	
Detached and terraced development	139	Laboratories	200
Deck access	140		
Stepped houses	141	CULTURAL VENUES	
Vertical access		OOLIOICAL VENOLO	
		Museums and Art Galleries	
Floor Plans		General	207
Houses	143	Display rooms	208
Flats	145		
Danne		Theatres	
Rooms		Historical review	
Access		Typology	210
Kitchens	149	Auditorium	211
Living areas	154	Seating	212
Bathrooms	160	Stage	
Subsidiary rooms	162	Subsidiary rooms	
Garages and carports		Workshops and staff rooms	
- arages and carpone minimum.			
		Rehearsal and public rooms	
ACCOMMODATION		Modernisation and extension	218
Chudant Davidanaa		Concert Halls	
Student Residences		Origins, variants	210
General design notes	167		
Elderly People's Accommodation		Technical requirements, organ, orchestra	
Retirement flats	160	Acoustics	221
		Cinemas	
Nursing and care homes		Projection	222
Examples	170		
Hotels		Auditorium	
Basics	171	Multiplex cinemas	
Rooms		Multiplex cinemas, examples	
		Drive-in cinemas	226
Examples	1/3	Civers	
Catering		Circus	007
Restaurants	17/	Stationary	227
		Zoos	
Dining rooms, serving		Basics	228
Fast food outlets		Keeping animals	
Restaurant kitchens		, 9	
Large kitchens	181	Enclosures	230
Examples of large kitchens	183		
Youth Hostels		ADMINISTRATION AND OFFICES	
	404	ADMINISTRATION AND OFFICES	
General design notes	184	Office Buildings	
Holiday/Weekend Cabins		Structures	231
General design notes	185	Tendencies/criteria	
		Typology until 1980	
Motels			
General design notes	186	Typology since 1980	
		Space requirement	
Camping		Computer workstations	
General design notes	187	Archives	
		Additional areas	238
EDUCATION AND RESEARCH		Room typology	
LDOOM HON MESERRUN		Grid	
Children's Daycare		Access	
Access and building layouts	188	Building services	
Rooms, outdoor areas		Construction	
, 		Outou delicit	

High-Rise Buildings	Operational areas	296
Basics	Outpatient area	
Construction245	Outpatient medical centre – example	
Requirements246	Examination and treatment	
	Care	
Libraries	Administration, social services	
Basics	Supply and waste disposal	
Fittings	Technical supply	
Space requirement	rosiniosi osppij iliiniiniiniiniiniiniiniiniiniiniiniinii	
Scientific libraries	SDODT AND LEIGHDE	
Archives252	SPORT AND LEISURE	
Banks	Stadiums	
Banks	Overview	318
203	Spectator stands	
DETAIL		
RETAIL	Sports Facilities	
Retail Outlets	Playing areas	
Guidelines and typologies254	Athletics	
Retail regulations	Tennis	327
Entrances and shop windows	Miniature golf	
Checkout and waiting zones	Golf courses	331
	Water sport, marinas	333
Waiting zones – examples	Water sport, rowing and canoeing	339
Routeing, escalators	Equestrian sport	341
Fittings – dimensions	Ski jumping	343
Food shops	Ice rinks	
Self-service shops262	Roller skating rinks	
	Speed roller skating, skateboarding	
INDUSTRY AND TRADE	Cyclo-cross, BMX	
landers to a	Shooting ranges	
Industry	Cristing runges	
Basics	Sports Halls	
Shed construction	Dimensions	350
Multi-storey industrial buildings266	Layout, construction	352
Transport	Equipment	353
Warehousing268	Stands	354
Subsidiary rooms270	Examples	355
Examples	Judo	356
Workshops	Wrestling	
•	Weight-lifting	
Joinery	Boxing	
Carpenter's shop	Badminton	
Metalwork	Squash	
Vehicle repairs	Table tennis	
Bakery	Billiards	
Meat processing plant	Condition, fitness	
Other trades	Climbing halls	
Laundry281	Bowling alleys	
Fire station283	bowling alleys	30 1
	Swimming Pools	
RELIGIOUS BUILDINGS	Indoor swimming pools	362
	Outdoor pools	
Christian Churches	Indoor/outdoor pools	
Liturgical elements285	Private pools	
Furnishing, vestry286	·	
Bell towers287	Spa	
Synagogues	Sauna/small sauna/wellness	372
General design notes288	Amusement Arcades	
Ocheral design notes200	Amusement arcades	375
Mosques	Amusement areades	
General design notes289	TRANSPORT	
-	TRANSPORT	
HEALTH	Roads	
1 1 may 1 m 1 1 f	Street spaces	376
Doctors' Practices	Types of road	
Single and group practices290	*,	
	Motorways	
Hospitals	Traffic space	
General, modular grid	Inter-urban roads	
Building design	Intersections	
Examples	Footpaths and cycle ways	
Corridors, doors, stairs, lifts295	Bicycle traffic/storage	383

Traffic calming	385	Greenhouses	
Noise protection	386	Greenhouses	441
•			
Parking Facilities		Ponds and Pools	
Vehicles	387	Garden pond	442
Vehicles turning	389	Natural swimming pool	443
Parking spaces	390	Water plants for natural swimming pool	444
Multi-storey car parks	392		
Ramps		External Works – Example	
Multi-storey car park regulations		Federal Environment Agency	445
Parking systems		A CDICULTUDE	
Vehicles – trucks		AGRICULTURE	
Trucks – parking and turning		FARMYARDS	
Service areas	399	Basics	446
Petrol stations	400		
Car wash	402	Space requirements	
		Machinery	
Public Transport		Fodder storage	449
Conditions, means of transport	403	Dung and drainage	450
Stops and stations	404	Climate in animal housing	451
Traffic spaces		· ·	
Bus stations		Animal Husbandry	
Duo stations		Housing poultry	
Railways		Keeping small animals	453
Tracks	408	Sheep housing	
Typical Continental European structure –	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Laying hens	
gauges and clearances	440		
		Pig keeping	
UK structure – gauges and clearances		Dairy farming	
Freight Transport		Finishing beef cattle	458
Freight transport	413	Keeping horses	459
Stations	414	0 1 101 1	
Station buildings	415	Supply and Disposal	
Platforms		Loading yards	
Platform furniture		Loading ramps, bridges, lifting platforms	462
riationii juilliluie	417	Rubbish chute systems	463
Aviation		Rubbish collection rooms	
Basics	418	Emergency power rooms	
Airports		Line gency power rooms	700
Puntana			
Runways		BUILDING SERVICES	
Terminals	421	BUILDING SERVICES	
Terminals Terminal and apron	421 422	BUILDING SERVICES Renewable Energy	
Terminals	421 422		466
Terminals Terminal and apron	421 422	Renewable Energy Overview	
Terminals Terminal and apron Aeroplanes	421 422	Renewable Energy Overview Solar energy	467
Terminals Terminal and apron	421 422	Renewable Energy Overview Solar energy Bioenergy	467 468
Terminals Terminal and apron Aeroplanes EXTERNAL WORKS	421 422	Renewable Energy Overview	467 468
Terminals Terminals Terminal and apron Aeroplanes EXTERNAL WORKS Cemeteries	421 422 423	Renewable Energy Overview Solar energy Bioenergy Geothermal energy, heat pumps CHP, block heating and power,	467 468 469
Terminals Terminal and apron Aeroplanes EXTERNAL WORKS Cemeteries Morgue and crematorium	421 422 423	Renewable Energy Overview	467 468 469
Terminals Terminal and apron Aeroplanes EXTERNAL WORKS Cemeteries Morgue and crematorium Graves, cemetery chapel		Renewable Energy Overview Solar energy Bioenergy Geothermal energy, heat pumps CHP, block heating and power, fuel cells	467 468 469
Terminals Terminal and apron Aeroplanes EXTERNAL WORKS Cemeteries Morgue and crematorium		Renewable Energy Overview Solar energy Bioenergy Geothermal energy, heat pumps CHP, block heating and power, fuel cells Building Physics	467 468 469 470
Terminals Terminals Terminal and apron Aeroplanes EXTERNAL WORKS Cemeteries Morgue and crematorium Graves, cemetery chapel Cemeteries		Renewable Energy Overview Solar energy Bioenergy Geothermal energy, heat pumps CHP, block heating and power, fuel cells Building Physics Thermal insulation	
Terminals Terminal and apron Aeroplanes EXTERNAL WORKS Cemeteries Morgue and crematorium Graves, cemetery chapel Cemeteries Landscape Architecture		Renewable Energy Overview Solar energy Bioenergy Geothermal energy, heat pumps CHP, block heating and power, fuel cells Building Physics	
Terminals Terminals Terminal and apron Aeroplanes EXTERNAL WORKS Cemeteries Morgue and crematorium Graves, cemetery chapel Cemeteries		Renewable Energy Overview Solar energy Bioenergy Geothermal energy, heat pumps CHP, block heating and power, fuel cells Building Physics Thermal insulation	
Terminals Terminal and apron Aeroplanes EXTERNAL WORKS Cemeteries Morgue and crematorium Graves, cemetery chapel Cemeteries Landscape Architecture		Renewable Energy Overview Solar energy Bioenergy Geothermal energy, heat pumps CHP, block heating and power, fuel cells Building Physics Thermal insulation Sound insulation Room acoustics	
Terminals Terminal and apron Aeroplanes EXTERNAL WORKS Cemeteries Morgue and crematorium Graves, cemetery chapel Cemeteries Landscape Architecture Design aspects and concepts Earthworks		Renewable Energy Overview Solar energy Bioenergy Geothermal energy, heat pumps CHP, block heating and power, fuel cells Building Physics Thermal insulation Sound insulation Room acoustics Lightning protection	
Terminals Terminal and apron Aeroplanes EXTERNAL WORKS Cemeteries Morgue and crematorium Graves, cemetery chapel Cemeteries Landscape Architecture Design aspects and concepts Earthworks Soil		Renewable Energy Overview Solar energy Bioenergy Geothermal energy, heat pumps CHP, block heating and power, fuel cells Building Physics Thermal insulation Sound insulation Room acoustics Lightning protection Daylight	
Terminals Terminal and apron Aeroplanes EXTERNAL WORKS Cemeteries Morgue and crematorium Graves, cemetery chapel Cemeteries Landscape Architecture Design aspects and concepts Earthworks Soil Garden Enclosures		Renewable Energy Overview Solar energy Bioenergy Geothermal energy, heat pumps CHP, block heating and power, fuel cells Building Physics Thermal insulation Sound insulation Room acoustics Lightning protection	
Terminals Terminal and apron Aeroplanes EXTERNAL WORKS Cemeteries Morgue and crematorium Graves, cemetery chapel Cemeteries Landscape Architecture Design aspects and concepts Earthworks Soil Garden Enclosures		Renewable Energy Overview Solar energy Bioenergy Geothermal energy, heat pumps CHP, block heating and power, fuel cells Building Physics Thermal insulation Sound insulation Room acoustics Lightning protection Daylight Physical basics	
Terminals Terminal and apron Aeroplanes EXTERNAL WORKS Cemeteries Morgue and crematorium Graves, cemetery chapel Cemeteries Landscape Architecture Design aspects and concepts Earthworks Soil Garden Enclosures Walls and fences		Renewable Energy Overview Solar energy Bioenergy Geothermal energy, heat pumps CHP, block heating and power, fuel cells Building Physics Thermal insulation Sound insulation Room acoustics Lightning protection Daylight Physical basics Position of the sun	
Terminals Terminal and apron Aeroplanes EXTERNAL WORKS Cemeteries Morgue and crematorium Graves, cemetery chapel Cemeteries Landscape Architecture Design aspects and concepts Earthworks Soil Garden Enclosures Walls and fences Pergola and Trellis		Renewable Energy Overview Solar energy Bioenergy Geothermal energy, heat pumps CHP, block heating and power, fuel cells Building Physics Thermal insulation Sound insulation Room acoustics Lightning protection Daylight Physical basics Position of the sun Insolation	
Terminals Terminal and apron Aeroplanes EXTERNAL WORKS Cemeteries Morgue and crematorium Graves, cemetery chapel Cemeteries Landscape Architecture Design aspects and concepts Earthworks Soil Garden Enclosures Walls and fences Pergola and Trellis Pergolas		Renewable Energy Overview Solar energy Bioenergy Geothermal energy, heat pumps CHP, block heating and power, fuel cells Building Physics Thermal insulation Sound insulation Room acoustics Lightning protection Daylight Physical basics Position of the sun Insolation Shadow	
Terminals Terminal and apron Aeroplanes EXTERNAL WORKS Cemeteries Morgue and crematorium Graves, cemetery chapel Cemeteries Landscape Architecture Design aspects and concepts Earthworks Soil Garden Enclosures Walls and fences Pergola and Trellis		Renewable Energy Overview Solar energy Bioenergy Geothermal energy, heat pumps CHP, block heating and power, fuel cells Building Physics Thermal insulation Sound insulation Room acoustics Lightning protection Daylight Physical basics Position of the sun Insolation Shadow Radiation energy	
Terminals Terminal and apron Aeroplanes EXTERNAL WORKS Cemeteries Morgue and crematorium Graves, cemetery chapel Cemeteries Landscape Architecture Design aspects and concepts Earthworks Soil Garden Enclosures Walls and fences Pergola and Trellis Pergolas Frellises		Renewable Energy Overview Solar energy Bioenergy Geothermal energy, heat pumps CHP, block heating and power, fuel cells Building Physics Thermal insulation Sound insulation Room acoustics Lightning protection Daylight Physical basics Position of the sun Insolation Shadow Radiation energy Window lighting	
Terminals Terminal and apron Aeroplanes EXTERNAL WORKS Cemeteries Morgue and crematorium Graves, cemetery chapel Cemeteries Landscape Architecture Design aspects and concepts Earthworks Goil Garden Enclosures Walls and fences Pergola and Trellis Pergolas Trellises Examples of plants		Renewable Energy Overview Solar energy Bioenergy Geothermal energy, heat pumps CHP, block heating and power, fuel cells Building Physics Thermal insulation Sound insulation Room acoustics Lightning protection Daylight Physical basics Position of the sun Insolation Shadow Radiation energy Window lighting Rooflighting	
Terminals Terminal and apron Aeroplanes EXTERNAL WORKS Cemeteries Morgue and crematorium Graves, cemetery chapel Cemeteries Landscape Architecture Design aspects and concepts Earthworks Soil Garden Enclosures Walls and fences Pergola and Trellis Pergolas Trellises Examples of plants Paths, Paving, Steps		Renewable Energy Overview Solar energy Bioenergy Geothermal energy, heat pumps CHP, block heating and power, fuel cells Building Physics Thermal insulation Sound insulation Room acoustics Lightning protection Daylight Physical basics Position of the sun Insolation Shadow Radiation energy Window lighting Rooflighting	
Terminals Terminal and apron Aeroplanes EXTERNAL WORKS Cemeteries Morgue and crematorium Graves, cemetery chapel Cemeteries Landscape Architecture Design aspects and concepts Earthworks Goil Garden Enclosures Walls and fences Pergola and Trellis Pergolas Trellises Examples of plants		Renewable Energy Overview Solar energy Bioenergy Geothermal energy, heat pumps CHP, block heating and power, fuel cells Building Physics Thermal insulation Sound insulation Room acoustics Lightning protection Daylight Physical basics Position of the sun Insolation Shadow Radiation energy Window lighting Rooflighting Quality criteria	
Terminals Terminal and apron Aeroplanes EXTERNAL WORKS Cemeteries Morgue and crematorium Graves, cemetery chapel Cemeteries Landscape Architecture Design aspects and concepts Earthworks Soil Garden Enclosures Walls and fences Pergola and Trellis Pergolas Frellises Examples of plants Paths, Paving, Steps Design aspects		Renewable Energy Overview Solar energy Bioenergy Geothermal energy, heat pumps CHP, block heating and power, fuel cells Building Physics Thermal insulation Sound insulation Room acoustics Lightning protection Daylight Physical basics Position of the sun Insolation Shadow Radiation energy Window lighting Rooflighting Quality criteria Directing sunlight	
Terminals Terminal and apron Aeroplanes EXTERNAL WORKS Cemeteries Morgue and crematorium Graves, cemetery chapel Cemeteries Landscape Architecture Design aspects and concepts Earthworks Soil Garden Enclosures Walls and fences Pergola and Trellis Pergolas Frellises Examples of plants Paths, Paving, Steps Design aspects Drainage		Renewable Energy Overview Solar energy Bioenergy Geothermal energy, heat pumps CHP, block heating and power, fuel cells Building Physics Thermal insulation Sound insulation Room acoustics Lightning protection Daylight Physical basics Position of the sun Insolation Shadow Radiation energy Window lighting Rooflighting Quality criteria	
Terminals Terminal and apron Aeroplanes EXTERNAL WORKS Cemeteries Morgue and crematorium Graves, cemetery chapel Cemeteries Landscape Architecture Design aspects and concepts Earthworks Soil Garden Enclosures Walls and fences Pergola and Trellis Pergolas Frellises Examples of plants Paths, Paving, Steps Design aspects		Renewable Energy Overview Solar energy Bioenergy Geothermal energy, heat pumps CHP, block heating and power, fuel cells Building Physics Thermal insulation Sound insulation Room acoustics Lightning protection Daylight Physical basics Position of the sun Insolation Shadow Radiation energy Window lighting Rooflighting Quality criteria Directing sunlight	
Terminals Terminal and apron Aeroplanes EXTERNAL WORKS Cemeteries Morgue and crematorium Graves, cemetery chapel Cemeteries Landscape Architecture Design aspects and concepts Earthworks Goil Garden Enclosures Walls and fences Pergola and Trellis Pergolas Trellises Examples of plants Paths, Paving, Steps Design aspects Drainage Rainwater management		Renewable Energy Overview Solar energy Bioenergy Geothermal energy, heat pumps CHP, block heating and power, fuel cells Building Physics Thermal insulation Sound insulation Room acoustics Lightning protection Daylight Physical basics Position of the sun Insolation Shadow Radiation energy Window lighting Rooflighting Quality criteria Directing sunlight Sun shading Lighting	467 468 469 470 471 471 482 485 488 489 490 493 494 495 497 498
Terminals Terminal and apron Aeroplanes EXTERNAL WORKS Cemeteries Morgue and crematorium Graves, cemetery chapel Cemeteries Landscape Architecture Design aspects and concepts Earthworks Soil Garden Enclosures Walls and fences Pergola and Trellis Pergolas Errellises Examples of plants Paths, Paving, Steps Design aspects Drainage Rainwater management /egetation		Renewable Energy Overview Solar energy Bioenergy Geothermal energy, heat pumps CHP, block heating and power, fuel cells Building Physics Thermal insulation Sound insulation Room acoustics Lightning protection Daylight Physical basics Position of the sun Insolation Shadow Radiation energy Window lighting Rooflighting Quality criteria Directing sunlight Sun shading Lighting Artificial lighting Rofflighting Artificial lighting	
Terminals Terminal and apron Aeroplanes EXTERNAL WORKS Cemeteries Morgue and crematorium Graves, cemetery chapel Cemeteries Landscape Architecture Design aspects and concepts Earthworks Soil Garden Enclosures Walls and fences Pergola and Trellis Pergolas Examples of plants Paths, Paving, Steps Design aspects Drainage Rainwater management /egetation Plants		Renewable Energy Overview Solar energy Bioenergy Geothermal energy, heat pumps CHP, block heating and power, fuel cells Building Physics Thermal insulation Sound insulation Room acoustics Lightning protection Daylight Physical basics Position of the sun Insolation Shadow Radiation energy Window lighting Rooflighting Quality criteria Directing sunlight Sun shading Lighting Artificial lighting Lamps	
Terminals Terminal and apron Aeroplanes EXTERNAL WORKS Cemeteries Morgue and crematorium Graves, cemetery chapel Cemeteries Landscape Architecture Design aspects and concepts Earthworks Goil Garden Enclosures Walls and fences Pergola and Trellis Pergolas Trellises Examples of plants Paths, Paving, Steps Design aspects Drainage Rainwater management		Renewable Energy Overview Solar energy Bioenergy Geothermal energy, heat pumps CHP, block heating and power, fuel cells Building Physics Thermal insulation Sound insulation Room acoustics Lightning protection Daylight Physical basics Position of the sun Insolation Shadow Radiation energy Window lighting Rooflighting Quality criteria Directing sunlight Sun shading Lighting Lamps Types of lighting Lamps Types of lighting	
Terminals Terminal and apron Aeroplanes EXTERNAL WORKS Cemeteries Morgue and crematorium Graves, cemetery chapel Cemeteries Landscape Architecture Design aspects and concepts Earthworks Soil Garden Enclosures Walls and fences Pergola and Trellis Pergolas Trellises Examples of plants Paths, Paving, Steps Design aspects Drainage Rainwater management Vegetation Plants Plants and lawns		Renewable Energy Overview Solar energy Bioenergy Geothermal energy, heat pumps CHP, block heating and power, fuel cells Building Physics Thermal insulation Sound insulation Room acoustics Lightning protection Daylight Physical basics Position of the sun Insolation Shadow Radiation energy Window lighting Rooflighting Quality criteria Directing sunlight Sun shading Lighting Lamps Types of lighting Lighting layout	467 468 469 470 471 471 482 485 488 489 490 493 494 495 500 501 501 502
Terminals Terminal and apron Aeroplanes EXTERNAL WORKS Cemeteries Morgue and crematorium Graves, cemetery chapel Cemeteries Landscape Architecture Design aspects and concepts Earthworks Soil Garden Enclosures Walls and fences Pergola and Trellis Pergolas Trellises Examples of plants Paths, Paving, Steps Design aspects Drainage Rainwater management Vegetation Plants Plants and lawns Biological Engineering		Renewable Energy Overview Solar energy Bioenergy Geothermal energy, heat pumps CHP, block heating and power, fuel cells Building Physics Thermal insulation Sound insulation Room acoustics Lightning protection Daylight Physical basics Position of the sun Insolation Shadow Radiation energy Window lighting Rooflighting Quality criteria Directing sunlight Sun shading Lighting Lamps Types of lighting Lamps Types of lighting	467 468 469 470 471 471 482 485 488 489 490 493 494 495 500 501 501 502
Terminals Terminal and apron Aeroplanes EXTERNAL WORKS Cemeteries Morgue and crematorium Graves, cemetery chapel Cemeteries Landscape Architecture Design aspects and concepts Earthworks Soil Garden Enclosures Walls and fences Pergola and Trellis Pergolas Trellises Examples of plants Paths, Paving, Steps Design aspects Drainage Rainwater management Vegetation Plants Plants and lawns		Renewable Energy Overview Solar energy Bioenergy Geothermal energy, heat pumps CHP, block heating and power, fuel cells Building Physics Thermal insulation Sound insulation Room acoustics Lightning protection Daylight Physical basics Position of the sun Insolation Shadow Radiation energy Window lighting Rooflighting Quality criteria Directing sunlight Sun shading Lighting Lamps Types of lighting Lighting layout	467 468 469 470 471 471 482 485 488 489 490 493 494 495 500 501 501 502 505 506 507

Fluorescent tubes	509
Workplace Guideline 'Artificial lighting' (excerpt)	510
Fire Protection	
Basics	511
Classification	512
Fire compartment walls	513
Building components	514
Fire-resistant glazing	516
Fire-resistant door sets	517
Fire fighting installations	518
Smoke and heat extractor systems	
Sprinkler systems	520
Other extinguishing systems	521
Domestic Installation	
Drainage	522
Ventilation	

Heating	532
Small sewage treatment plants	
Chimneys and Ventilation Shafts	
Chimneys	53
Open fireplaces	
Ventilation shafts	
References	540
BS and DIN Standards	54
Conversion of Units	
Weights and measures	55
Conversion tables	
INDEX	57