
NAVFAC IGS-08331 (MAY 2002)

Preparing Activity: LANTNAVFACENGCOM Based on UFGS-08331N

ITALIAN GUIDE SPECIFICATIONS

Use for ITALIAN projects only

SECTION 08331

ROLLING SERVICE [AND FIRE] DOORS
05/02

NOTE: This guide specification is issued by the
Atlantic Division, Naval Facilities Engineering
Command for regional use in Italy.

NOTE: This guide specification covers rolling
service doors and rolling fire doors. Rolling fire
doors are not manufactured in Italy at this time.
American standards and manufacturers have been
included for use when rolling fire doors are
required for a project.

NOTE: On the drawings, show:

1. Locations and sizes of door openings
2. Side of wall where door is to be located
3. Details of door openings and frames
4. Method, type, and spacing of frame anchors
5. Electrical wiring, conduit, and devices for
motor-operated doors; power characteristics; and
location of controls

Comments and suggestion on this specification are
welcome and should be directed to the technical
proponent of the specification. A listing of the
technical proponents, including their organization
designation and telephone number, is on the Internet.

Use of electronic communication is encouraged.

Brackets are used in the text to indicate designer choices or locations where text must be supplied by the designer.

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

ITALIAN NATIONAL INSTITUTE FOR THE UNIFICATION OF STANDARDS (UNI)

UNI 8612	(1989) Motorized Gates and Main Doors - Protection Devices Against Accidents
UNI-EN 10142	(1990 and 1990/A1) Continuously Hot-Dip Zinc Coated Low Carbon Steel Sheet and Strip for Cold Forming - Technical Delivery Conditions
UNI-EN 10143	(1993) Continuously Hot-Dip Metal Coated Steel Sheet and Strip - Tolerances on Dimensions and Shape
UNI-EN 10163-1	(1991) Delivery Requirements for Surface Condition of Hot Rolled Steel Plates, Wide Flats and Sections - Part 1: General Requirements
UNI-EN 10163-2	(1991) Delivery Requirements for Surface Condition of Hot Rolled Steel Plates, Wide Flats and Sections - Part 2: Plate and Wide Flats
UNI-EN 10163-3	(1991) Delivery Requirements for Surface Condition of Hot Rolled Steel Plates, Wide Flats and Sections - Part 3: Sections

ITALIAN ELECTRICAL COMMITTEE (CEI)

CEI 14-8	(1992) Dry-Type Power Transformers
CEI-EN 60034-1	(1996) Rotating Electrical Machines - Part 1: Rating and Performance
CEI-EN 60079-10	(1996) Electrical Apparatus for Explosive Gas Atmospheres - Part 10: Classification of Hazardous Areas

CEI-EN 60529 (1997) Degrees of Protection Provided by Enclosures (IP Code)

NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION (NEMA)

- NEMA ICS 1 (1993) Industrial Control and Systems
- NEMA ICS 2 (1993) Industrial Control and Systems Controllers, Contactors and Overload Relays, Rated Not More Than 2000 Volts AC or 750 Volts DC
- NEMA ICS 6 (1993) Industrial Control and Systems Enclosures
- NEMA MG 1 (1993; Rev. 1-2) Motors and Generators

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

- NFPA 70 (1996) National Electrical Code
- NFPA 80 (1995) Fire Doors and Fire Windows

UNDERWRITERS LABORATORIES INC. (UL)

- UL 506 (1994) Specialty Transformers

1.2 SUBMITTALS

NOTE: Submittals must be limited to those necessary for adequate quality control. The importance of an item in the project should be one of the primary factors in determining if a submittal for the item is required.

A "G" following a submittal item indicates that the submittal requires Government approval. Some submittals are already marked with a "G". Only delete an existing "G" if the submittal item is not complex and can be reviewed through the Contractor's Quality Control system. Only add a "G" if the submittal is sufficiently important or complex in context of the project.

For submittals requiring Government approval on Army projects, a code of up to three characters within the submittal tags may be used following the "G" designation to indicate the approving authority. Recommended codes for Army projects are "RE" for Resident Engineer approval, "ED" for Engineering approval, and "AE" for Architect-Engineer approval. Codes following the "G" typically are not used for Navy projects.

Submittal items not designated with a "G" are considered as being for information only for Army projects and for Contractor Quality Control approval for Navy projects.

Submit the following in accordance with section entitled "Submittal Procedures."

SD-02 Shop Drawings

Rolling service doors; G

[Rolling fire doors; G]

Submit drawings for doors showing types, sizes, locations, metal gages, hardware provisions, installation details, and other details of construction. [For motor-operated doors include supporting brackets for motors, location, type, and ratings of motors, and safety devices.]

SD-03 Product Data

Rolling service doors; G

[Rolling fire doors; G]

[Motors; G]

[Controls; G]

[For electrically operated system, submit wiring diagrams for motor and controls.]

SD-08 Manufacturer's Instructions

Rolling service doors

[Rolling fire doors]

Submit manufacturer's currently recommended installation procedures for doors with the shop drawings.

SD-10 Operation and Maintenance Data

Rolling service doors; G

[Rolling fire doors]; G

Submit Data Package 2, with wiring diagrams in accordance with Section 01781, "Operation and Maintenance Data."

1.3 DELIVERY AND STORAGE

Protect doors and accessories from damage during delivery, storage, and handling. Clearly mark manufacturer's brand name. Store doors in dry locations with adequate ventilation, free from dust and water, and in such a manner as to permit access for inspection and handling. Handle doors carefully to prevent damage. Remove damaged items that cannot be restored to like-new condition and provide new items.

PART 2 PRODUCTS

2.1 MANUFACTURERS

2.1.1 The following manufacturers make products that comply with this specification.

Aiello Sicurser
Via C. Colombo, 126
95121 Catania
Tel: 095/346210
Fax: 095/7231243

Hormann Italia
P.O. Box 607
38100 - Trento
Tel: 0461/240101
Fax: 0461/241557

NOTE: Rolling fire doors shall be supplied by United States rolling door manufacturers. Include the paragraph below when rolling fire doors are required.

2.1.2 The following U.S. manufacturers make rolling fire-rated service doors that comply with this specification.

The Cookson Company
2417 S. 50th Avenue
Phoenix, Arizona 85043
Tel: 602/272-4244

Cornell Iron Works, Inc.
Crestwood Industrial Park
Mountaintop, Pennsylvania 18707
Tel: 800/233-8366

McKeon Rolling Steel Door Co., Inc.
95 29th Street
Brooklyn, NY 11232
Tel: 800/266-9392

2.2 ROLLING SERVICE DOORS

NOTE: Insert design wind load for the building if greater than 0.96 kilopascals.

Shall be spring counterbalanced, rolling type, and shall be designed for use on [exterior] [or] [interior] openings, as indicated. Doors shall be operated [by means of lifting handles] [by hand chain with gear or sprocket reduction] [by hand crank with gear or sprocket reduction] [by electric-power with auxiliary hand chain operation]. Doors shall be complete with guides, hardware, fastenings, operating mechanisms, and accessories. Doors shall be surface-mounted type with guides at jambs set back a sufficient distance to provide a clear opening when door is in open position. Doors, hardware, and anchors shall be designed to withstand a wind pressure of [0.96] [_____] kilopascals of door area without damage. [Exterior doors shall be mounted [as indicated] [on interior side of walls].] [Where service doors are indicated to be chain- or crank-operated, the door design and construction shall allow for future installation of electric-power operation.]

2.3 FABRICATION

NOTE: Designers should request technical assistance from the door manufacturer for large doors that will be exposed to wind loads of 0.96 or more kilopascal. High opening doors can be designed for holding capability, however, they will not be operational due to friction with the guides and windlocks. An alternate door system should be considered if operation is essential during these conditions.

2.2.1 Curtains

NOTE: For security applications, steel slats as heavy as 1.8 mm thick may be specified. For severe climates, 38 mm thick insulated slats with a "U" factor of 0.11 are available from some manufacturers.

Shall be formed of interlocking galvanized steel slats of shapes standard with the manufacturer, except that slats for exterior doors shall be flat type. Curtain shall roll up on a barrel supported at head of opening on brackets and be balanced by a torsional spring system in the barrel. [[Slats for doors less than 4500 mm wide shall be not lighter than 0.8 mm thick;] [slats for doors from 4500 mm wide to 6400 mm wide shall be not lighter than 0.9 mm thick;] [slats for doors 6400 mm wide and wider shall be not lighter than 1.2 mm thick].] [Slats shall be of the gage required for the width indicated and the wind pressure specified above.] [Vision panels shall be provided in doors where indicated.] [Slats for exterior doors shall be insulated with not less than 13 mm thick polyurethane or polyisocyanurate foam insulation. Interior side of insulation shall be covered with interlocking galvanized steel slats not lighter than 0.6 mm

thick.]

2.3.2 Endlocks [and Windlocks]

The ends of each slat or each alternate slat shall have malleable iron or galvanized steel endlocks of manufacturer's stock design. [In addition to endlocks, exterior doors which are more than 4875 mm wide or which have a design wind load of more than 0.96 kilopascals, shall have windlocks or integral slat lugs of manufacturer's standard design at ends of at least every sixth slat. Windlocks or lugs shall prevent curtain from leaving guide because of deflection from wind pressure or other forces.]

2.3.3 Bottom Bar

The curtain shall have a steel bottom bar consisting of two angles of equal weight, one on each side, or an equivalent extruded aluminum section, fastened to bottom of curtain. Do not use aluminum on doors more than 4875 mm wide. In addition, exterior doors shall have a compressible and replaceable rubber, neoprene, or vinyl weather seal attached to bottom bar. [Attach a combination compressible seal and fail-safe safety device for stopping and reversing the travel of the door to the bottom bar of doors that are electric-power operated.]

2.3.4 Guides

Steel structural shapes or formed steel shapes fastened to wall with steel shapes not less than 5 mm thick. Guides shall be of sufficient depth or shall incorporate a steel locking bar to retain the curtain in place under the wind pressure specified. Provide continuous vinyl or neoprene weather seals on guides at exterior doors. Securely attach guides to adjoining construction with not less than 10 mm diameter bolts, spaced near each end and not over 750 mm apart.

2.3.5 Barrel

Steel pipe or commercial welded steel tubing of proper diameter and thickness for the size of curtain. Deflection shall not exceed one mm per 400 mm of span. Close ends of barrel with cast-iron plugs, machined to fit the pipe and either pinned or attached with screws in the spring barrel, except that drive end plug may be steel welded in place. Welding shall not be used on the tension end. Install within the barrel an oil-tempered, stress relieved, helical, counterbalancing steel spring, capable of producing sufficient torque to assure easy operation of the door curtain from any position. At least 80 percent of the door weight shall be counterbalanced at any position. Spring-tension shall be adjustable without removing the hood.

2.3.6 Brackets

Fabricate of steel plate or heavy cast iron to support the barrel, curtain, and operator and to form a supporting ring and end closure for the hood. Provide prelubricated, self-aligning ball bearings, shielded or sealed.

2.3.7 Hoods

Steel, not lighter than 0.6 mm thick formed to fit contour of end brackets and reinforced with steel rods, or rolled beads at top and bottom edges. [Hoods for openings more than 3650 mm in width shall have intermediate supporting brackets.] [Provide a weather baffle at the lintel or inside the hood of each exterior door.]

2.3.8 Locking Device

For each manually operated exterior rolling door provide manufacturer's standard chain- or bar-type locking device on the inside. The locking device shall be of type to receive a padlock with a 8 mm diameter shackle.

2.4 MANUAL OPERATION

2.4.1 Manual Push-Up Operation

Provide lifting handles on both sides of door and counterbalance in a manner to provide easy operation while raising or lowering the curtain by hand. The force required to operate the door shall not exceed 11 Kg. Provide pull-down straps or pole hooks on bottom rail of doors over 2130 mm high.

2.4.2 Manual Hand-Chain Operation

Provide galvanized, endless chain operating over a sprocket and extending to within 900 mm of floor. Obtain reduction by use of roller chain and sprocket drive or suitable gearing. Gears shall be high-grade gray iron, cast from machine-cut patterns. The pull required to operate the door shall not exceed 15 Kg.

2.4.3 Manual Crank Operation

Provide a fully enclosed, permanently lubricated, geared power unit mounted 860 mm above the floor; a removable crank; and a vertical shaft connecting the unit to the counterbalance drive system. The force required to operate the door shall not exceed 9 Kg. Gears shall be of high-grade gray iron, cast from machine-cut patterns.

2.5 ELECTRIC OPERATION

UNI 8612 and CEI-EN 60034-1.

2.5.1 Operator Features

Provide operators complete with electric motor, machine-cut reduction gears, steel chain and sprockets, magnetic brake, overload protection, brackets, pushbutton controls, limit switches, magnetic reversing contactor, and other accessories necessary for proper operation. The operator shall be so designed that the motor may be removed without disturbing the limit-switch timing and without affecting the emergency auxiliary operators. Make provision for immediate emergency manual operation of door by chain-gear mechanism in case of electrical failure. The emergency manual operating mechanism shall be so arranged that it may

be put into and out of operation from the floor, and its use shall not affect the timing of the limit switches. Provide an electrical or mechanical device which will disconnect the motor from the operating mechanism when the emergency manual operating mechanism is engaged.

2.5.2 Motors

Motorized Rolling Service Doors shall be in accordance with UNI 8612 and shall conform to CEI-EN 60034-1, [NEMA MG 1] high-starting torque, reversible type of sufficient horsepower and torque output to move the door in either direction from any position, and produce a door travel speed of not less than 0.2 or more than 0.3 meters per second, without exceeding the rated capacity. Motors shall be suitable for operation on current of the characteristics indicated and shall operate at not more than 3600 rpm. [Single-phase motors shall not have commutation or more than one starting contact.] [Motor enclosures shall be the drip-proof type [or NEMA TENV type].] CEI-EN 60034-1. Install motors in approved locations.

2.5.3 Controls

Each door motor shall have an enclosed, across-the-line type, magnetic reversing contactor, thermal-overload protection, solenoid-operated brake, limit switches, and remote control switches at locations indicated. Remote control switches shall be at least 1500 mm above the floor line, and all switches shall be located so that the operator will have complete visibility of the door at all times. The control equipment shall conform to CEI-EN 60034-1 [NEMA ICS 1 and NEMA ICS 2]. Control enclosures shall be IP 40 [NEMA ICS 6, Type 12 or Type 4, for interior locations and Type 4 for exterior locations, except that contactor enclosures may be Type 1] as per CEI-EN 60529, for interior locations and IP 54 for exterior locations, except that contactor enclosures may be Type 1. Locate control switches inside the building unless otherwise indicated. Each switch control station shall be of the three-button type, with the buttons marked "OPEN," "CLOSE," and "STOP." The "OPEN" and "STOP" buttons shall be of the type requiring only momentary pressure to operate. The "CLOSE" button shall be of the type requiring constant pressure to maintain the closing motion of the door. When the door is in motion, and the "STOP" button is pressed or the "CLOSE" button released, the door shall stop instantly and remain in the stop position; from the stop position, the door may then be operated in either direction by the "OPEN" or "CLOSE" buttons. Pushbuttons shall be full-guarded to prevent accidental operation. Provide limit switches to automatically stop the doors at their fully open and closed positions. Positions of the limit switches shall be readily adjustable.

2.5.4 Safety Device

UNI 8612. The bottom bar of power-operated doors shall have a safety device that will immediately stop and reverse the door in its closing travel upon contact with an obstruction in the door opening or upon failure of the device or any component of the control system and cause the door to return to its full open position. The door-closing circuit shall be automatically locked out and the door shall be operable manually until the failure or damage has been corrected. Do not use safety device as a limit switch.

2.5.5 Control Transformer

Shall be provided in power circuits as necessary to reduce the voltage on the control circuits to 120 volts or less (preferably 24 volts). The transformer shall conform to CEI 14-8 [UL 506].

2.5.6 Electrical Work

NOTE: See that labor and materials for connecting motors and controls are specified in the electrical section, "Rolling Doors: Mount controls, including type SO cable and takeup reels furnished by the door manufacturer, and provide necessary conduit, conductors, and devices in accordance with the door manufacturer's wiring diagrams."

Electrical components and installation shall conform to CEI Standards [NFPA 70] and as described under Section 16402, "Interior Distribution System." The door manufacturer shall furnish manual or automatic control and safety devices, including extra flexible type PVC cable and spring-loaded automatic takeup reel or equivalent device, as required for proper operation of the doors. Conduit, wiring, and mounting of controls is specified in Section 16402, "Interior Distribution System."

2.5.7 [Hazardous Locations

NOTE: Delete this paragraph if not applicable. Doors to which it is applicable should be identified in the specifications.

Electrical materials, equipment, and devices for installation in hazardous locations, as defined by CEI-EN 60079-10, [NFPA 70], shall be specifically approved by [an independent testing agency using equivalent standards, for the particular chemical group and the class and division of hazardous location involved.]

2.6 FINISHES

Slats, steel bottom bars, and hoods shall be hot-dip galvanized and shop primed. Shop prime other parts of coiling doors, except faying surfaces.

2.6.1 Primed Finish

Clean surfaces thoroughly, treat to assure maximum paint adherence, and provide a factory dip or spray coat of rust-inhibitive metallic oxide or synthetic resin primer on exposed surfaces.

2.6.2 Galvanized and Shop-Primed Finish

Surfaces specified shall have a zinc coating, a phosphate treatment, and a shop prime coat of rust-inhibitive paint. The galvanized coating shall conform to UNI-EN 10142, coating designation UNI-EN 10163-1, for steel sheets, except that hoods located on interior of the building may be UNI-EN 10143, for iron and steel products. The weight of coatings for products shall be as designated UNI-EN 10163-2 and UNI-EN 10163-3 for the thickness of base metal to be coated. The prime coat shall be a type especially developed for materials treated by phosphates and adapted to application by dipping or spraying. Repair damaged zinc-coated surfaces by the materials and methods conforming to UNI-EN 10142 and spot prime. At the option of the Contractor, a two-part system including bonderizing, baked-on epoxy primer, and baked-on enamel top coat may be applied to slats before forming, in lieu of prime coat specified.

[2.7 ROLLING FIRE DOORS

Shall conform to the requirements specified herein and to NFPA 80 for the class indicated. Doors shall bear labels of Underwriters Laboratories, or another independent testing agency which has follow-up service and which uses equivalent standards, indicating the applicable fire rating. The construction details necessary for labeled doors shall take precedence over details indicated or specified for service doors. Fire doors shall be equipped with automatic closing mechanism actuated by fusible links. Doors shall be forced into a closed position at a rate of descent of not more than 0.6 meters per second and come to rest without impact. The curtain shall be held against the sill until the release mechanism has been reset. The automatic closing mechanism shall not interfere with normal operation of the door. Fire doors shall be complete with hardware, accessories, and automatic closing device as required by NFPA 80.

]PART 3 EXECUTION

3.1 INSTALLATION

**NOTE: Structural steel door frames should be
specified in Section 05500, "Metal Fabrications."**

Install doors in accordance with approved detail drawings, manufacturer's directions, CEI and UNI Standards. [Install fire-rated doors to comply with NFPA 80.] Locate anchors and inserts for guides, brackets, [motors,] [switches,] hardware, and other accessories accurately. Upon completion, doors shall be weathertight and shall be free from warp, twist, or distortion. Safety requirements shall be in accordance with UNI 8612.

3.2 FINAL ADJUSTMENT

Doors shall be lubricated and properly adjusted to operate freely.

-- End of Section --