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REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
OFFICE OF THE SECRETARY
MANILA

JAN 28 2009

DEPARTMENT ORDER)
No. 09)
Series of 2009)
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SUBJECT: **DPWH Standard Specifications for Non-Structural Metal Framing, Item 1035**

In line with the mandate of the Department in providing effective standard specifications to be used in the implementation of various infrastructure projects and in view of the need of setting standard specifications for non-structural metal framing, the attached **DPWH Standard Specifications for Non-Structural Metal Framing, Item 1035**, are hereby prescribed, for the guidance and compliance of all concerned.

These specifications shall form part of the DPWH Standard Specifications (Volume III – Building, Ports and Harbors, Flood Control and Drainage Structure and Water Supply Systems).

This Order shall take effect immediately.

HERMOGENES E. EBDANE, JR.
Secretary

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DPWH STANDARD SPECIFICATIONS FOR

ITEM 1035 - NON-STRUCTURAL METAL FRAMING

1035.1 Description

This item shall consist of furnishing and installing non-load metal partitions such as steel studs wall systems, ceiling or soffit suspended or furred framing, wall furring, fasteners, and accessories for the screw attachment of gypsum board or fiber cement, plaster bases or other building boards as shown on the plans and in accordance with this specification.

1035.2 Material Requirements

Metal framing comes in a variety of gages or thickness. Most interior non-load bearing metal framed walls are either 25 or 20 gage. 25 gage is the lightest or thinnest material available. It is 0.0457 cm thick. Studs and track are C-shaped channels, roll formed from corrosion-resistant, galvanized steel. The minimum thickness and allowable wall height of Cold-Formed Steel Member are shown in Table 1035.1 and Table 1035.2, respectively.

Table 1035.1 Minimum Thickness of Cold-Formed Steel Members Non-Load Bearing or Drywall

Designation (mils)	Steel Thickness (cm)	Reference Gage Number
18	0.04	25
27	0.07	22
33	0.08	20

Steel stud has a web, flanges and returns. Studs are manufactured in lengths such as 2.44 m, 3.05 m and 2.66 m lengths.

Table 1035.2 Interior Partition - Allowable Wall Height

Stud Spacing			30.48 cm	40.64 cm	60.96 cm
Web Size		Allowable Wall Height			
cm	Code	Gage	m	m	m
4.13	STN	25	2.40	2.15	1.86
6.35	STN	25	3.30	2.99	2.45
9.20	STN	25	4.37	3.96	3.48

1035.3 Construction Requirements

Drywall framing shall be used to construct interior walls that do not need to support any load from above and will not have to withstand any wind forces. Drywall studs need not to support any load from above and will not have to withstand any wind forces. Drywall studs shall be used for non-load bearing partition walls and ceilings. Knockouts (pre-punched holes) shall be conveniently placed in the studs to facilitate the installation of electrical wiring, plumbing and bridging.

Studs shall be connected to the floor and ceiling track (runner) with pan head screws, spaced at either 30.48 cm, 40.64 cm or 60.96 cm on center-spacing based on wall height. Wallboard or other sheathing shall be then attached with Type "S" (fine-tread) drywall screws.

Metal studs shall be straight, light, non-combustible and not susceptible to termite damage. Matching track is available for each stud size with 3.18 cm, 5.08 cm and 7.62 cm leg heights.

1035. 3.1 Ceiling Assemblies

J FURRING CHANNEL
19 mm X 50 mm; 40 mm thick 5.00 m / any transportable length

BATTEN TYPE FURRING CHANNEL
23 mm X 37 mm; 40 mm and 60mm thick 5.00 m / any transportable length

SINGLE FURRING CHANNEL
19 mm X 25 mm; 40 mm thick 5.00 m / any transportable length

CARRYING CHANNEL
12mm X 38 mm; 1.0 mm thick 5.00 m / any transportable length

1035.3.2 Drywall Partition

STUD
35 mm X 51, 76, 92, 102 mm, 60 mm and thick 2.4 and 3.00 m/any transportable length.

TRACK
35 mm X 51, 64, 76, 92, 102 mm 60 mm and 80 mm thick 2.4 and 3.00 m/any transportable length.

1035.3.3 Screws

Power- Actuated Fasteners

Screws and power actuated fasteners shall be used to connect framing components and fasten other materials to the framing.

Self-drilling Screws are externally threaded fasteners with the ability to drill their own hole and form or 'tap' their own internal threads without deforming their own thread and without breaking during assembly. These screws are used with 33 mil (20 gage) steel or thicker.

1035.3.4 Installation of Steel Framing

1035.3.4.1 Cut studs and track to required lengths as you install using aviator snips or circular saw with abrasive, metal cutting blade.

1035.3.4.2 Attach ceiling track. Use drywall screws to attach to joists. For parallel joists, bridge two joists with track spaced 61 cm o.c. or less and install ceiling runner across bridges.

1035.3.4.3 Plumb to position floor runner directly below ceiling track.

1035.3.4.4 Attach floor track. Use power-actuated fasteners for concrete floor. Use drywall screws for wood sub-floor. Same fastener spacing as ceiling track. Then mark stud locations 40.64 cm o.c. top and bottom starting from the same end.

1035.3.4.5 Insert stud at slight angle into tracks - then twist into place. Be sure all studs are pointed the same way for easier drywall attachment and punch-outs are oriented the same way for easy plumbing or electrical installation.

1035.3.4.6 Screw-attach stud to ceiling track and floor track with 1.11 cm pan or wafer-head screws. Hold stud flange to runner for easier screw attachment.

1035.3.4.7 For door and window openings, cut track 10.16 cm longer than opening. Notch legs and bend web 90° to attach to jamb stud.

1035.3.4.8 Attach C-runner bracing across studs to support cabinet attachment. C-runner must be notched to fit between studs.

1035.3.4.9 Insert grommets or pieces of pipe insulation into pre-punched holes whenever you pass through wiring or plumbing.

1035.3.4.10 Screw-attach drywall to framing using drywall screws. Board should be attached to the open end of the studs first.

1035.3.4.11 Install corner beads and trim with screws or staples.

1035.3.4.12 Tape and finish with joint compound.

1035.3.5 Calculate room dimensions: It is recommended that you sketch a top view of your project. Measure the lineal footage of all walls with a tape measure and write each wall's length on the layout.

1035.3.6 Stud Spacing: Based on the wall height, spacing of studs shall conform to requirements shown on Table 1035.2.

1035.3.7 Calculate Studs: Based on spacing requirements, divide the wall length by 30.48 cm, 40.64 cm, 60.96 cm in order to calculate the number of studs needed. Add studs for corners and openings.

1035.3.8 Calculating Track: Take the total lineal feet of wall and multiply by 2 figures the amount of track needed for both the floor and ceiling. The commercial length of track is 3.048 m only. Add track for door and window headers and sills.

1035.3.9 Project Layout: According to your plan, using the plumb bob, a marker, and chalk line, establish top and bottom track positions. Marking for door openings at this time is beneficial.

1035.3.10 Helpful Hints

Most wood trim shall be adhesively attached and shall require temporary screws while adhesive sets. If mechanical attachment is required, consider inserting sections of wood 50 x 100 mm inside track for nailing.

Door frames shall be attached directly to steel framing, but installers prefer wood 5.08 cm x 10.16 cm framing around the rough opening. If this option is chosen, frame rough opening 7.62 cm wider to allow for wood studs.

If framing is used to support insulation blankets, the insulation shall be ordered to the full 40.64 cm or 60.96 cm width dimension.

Hanging pictures or artwork can be handled easily with standard hanging attachment except drywall screws are recommended where studs are located.

Extremely heavy shelving and other heavy objects should be anticipated. Cross bracing with C-runners is recommended.

LIMITATIONS: gage 25 steel studs are designed for use in non-load bearing construction only. Check building codes before beginning construction.

1035.3.11 Fasteners for Drywall Systems

Pan head type 'S' framing screws
Attachment of steel stud to steel track

1035.3.12 Fasteners for Steel to Steel/ Wood to Steel

Pan Head 20.32 cm x 1.11 cm - Framing screw for 20-25 gage steel
Unique grip - tight, high - torque pan head.

Hex Head 20.32 cm x 1.27 cm - Attaches fixtures backup plates, door frames and lathers channel to structural studs, metal decks.

1035.3.13 Fabrication

1035.3.13. 1 Framing components shall be pre-assembled into panels prior to erection.

1035.3.13.2 Fabricate panels square, with components attached in a manner so as to prevent racking or distortion.

1035.3.13.3 Cut all framing components squarely for attachment to perpendicular member, or as required for angular fit against abutting members. Hold members positively in place until properly fastened.

1035.3.13.4 Provide insulation as specified elsewhere in all double jamb studs and double header members, which will not be accessible to the insulation contractor.

1035.3.13.5 Axially Loaded Studs

1035.3.13.5.1 Install studs to have full bearing against inside track web 0.32 cm (maximum gap) prior to stud and track attachment.

1035.3.13.5.2 Splices in axially loaded studs are not permitted.

1035.3.13.5.3 Fasteners: Fasten components using self-tapping screws or welding.

1035.3.13.5.4 Welding: Welding is permitted on 18 gauge or heavier material only.

1035.3.13.5.4.1 Specify welding configuration and size on the Structural Calculation submittal.

1035.3.13.5.4.2 Quality welding operators

1035.3.13.5.4.3 Touch up all welds with zinc-rich paint in compliance with acceptable ASTM Standard.

1035.3.14 Protection

1035.3.14.1 Protect installed products until completion of project.

1035.3.14.2 Touch-up, repair or replace damaged products before Substantial Completion.

1035.3.15 Delivery, Storage and Handling

1035.3.15.1 Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.

1035.3.15.2 Store materials protected from exposure to rain, or other harmful weather conditions.

1035.3.16 Installation

1035.3.16.1 Ceiling Assemblies

1035.3.16.1.1 Fix and align accurately all steel angles at the maximum interval of 1.20 meter.

1035.3.16.1.2 Tie the suspension rod securely to the steel angle.

1035.3.16.1.3 Attach the carrying channel to the suspension clip then use the rod joiner to connect the suspension rod to the suspension clip.

1035.3.16.1.4 Attach the metal furring to the carrying channel at right angle to each other using the furring clips.

Metal furring can be spaced at 0.40 meter up to 0.60 meter apart.

1035.3.16.1.5 Ceiling boards (gypsum or fibre-cement) are attached to the metal framing by drywall screw.

1035.3.17 Drywall Partition

1035.3.17.1 Layout the floor tracks and ceiling tracks, Secure this using suitable anchoring method.

1035.3.17.2 Install the metal studs to the tracks spacing from 0.40 meter up to 0.60 meter, use blind rivets or screws. No horizontal bracing needed if the studs are spaced 0.40 m and the height does not exceed 3.00 meters. Thus, making the installation economical and durable.

1035.3.17.3 Install the Gypsum board or fiber cement board using drywall screw.

1035.4 Method of Measurement

Furring Channel for ceiling and wall partition shall be measured by linear meter. The quantity to be paid for shall be the number of furring material used and accepted in the completed work.

1035.5 Basis of Payment

The accepted quantities, measured as prescribed in Section 1035.4 shall be paid for at the contract unit price for Furring Channel, which price and payment shall be full compensation for furnishing and placing all materials and for all labor, equipment, tools and incidentals necessary to complete this item.

Payment will be made under :

Pay Item Number	Description	Unit of Measurement
1035	Furring Channel	Per Linear Meter