

SPECIFICATION FOR THE RUBBER SPEED HUMPS

I. GENERAL

1.01. Description

The rubber speed humps are the traffic management devices used for permanent or temporary motor vehicle speed reduction.

1.02. Applications

Rubber speed humps shall be considered for installation in the following situations:

- the safety of pedestrian and vehicle traffic requires improvement
- high risk of accidents on residential streets need to be reduced
- permanent or temporary lowering speed of the motor vehicles is required
- speeding of the motor vehicles create danger and sound pollution
- temporary, test installation is required before construction of the permanent asphalt speed humps
- temporary installation is required during the street fairs or other pedestrian activity events
- only temporary installation is allowed due to the snow removal
- only temporary installation is required due to planning certain changes in the traffic management system
- installation on surfaces when only flexible rubber speed humps may fully conform to the curvature of the street.

1.03. Installation locations:

The following locations should be considered for installation of the rubber speed humps:

- school zones and school crossings
- residential areas
- playground areas
- hospitals and nursing homes
- shopping centers
- parking facilities
- gas stations
- temporary traffic detouring zones
- construction work zones
- warehouse yards, indoor and outdoor.

1.04. Benefits of the rubber speed humps:

- easy and fast installation and removal
- lower cost when compared to asphalt speed humps
- the rubber speed humps provide uniform and consistent profile that is difficult to achieve with asphalt speed humps
- the rubber speed hump easily conforms to any curvature of the road surface due to flexibility the rubber
- the rubber speed humps can be installed by one person using simple tools.

1.05. Installation concerns

When considering installation of the rubber speed humps be sure to investigate the following:

- the delay to emergency services
- heavy use of the streets by trucks or buses
- potential shifting of the traffic to the nearby local or residential streets.

Due to potential delay to various city services the following services and residents affected by the proposed installation of the rubber speed humps should be consulted before installation and notified with respect to the final decision:

- police
- fire services
- ambulance services
- school and city bus services
- residents along affected streets.

1.06. Other requirements

Rubber speed humps should be properly marked as per local requirements and should be visible from the distance of minimum 100 feet.

II. PRODUCT

2.01. Product description

The rubber speed hump distributed by GNR Technologies Inc. is used for permanent or temporary motor vehicle speed reduction to under 30 km/hr (about 18 mph) along the designated street sections. The rubber speed hump is constructed from the middle and end sections according to the required total length of the speed hump.

Only the middle sections are equipped with a yellow reflective traffic tape for increased visibility.

2.02. Dimensions:

- A. Middle section
 - width of the section: 500 +/- 5 mm (19.7")
 - length of the section 900 +/- 5 mm (35.4")
 - thickness of the section 52 +/- 1 mm (2")

- B. End section (rounded)
 - width of the section: 450 +/- 5 mm (17.7")
 - length of the section: 900 +/- 5 mm (35.4")
 - thickness of the section 50 +/- 1 mm (2")

2.03. Weight:

- A. Middle section: 19 kg (42 lbs)
- B. End section: 15 kg (33 lbs)

2.04. Material: compression molded rubber compound (may contain natural rubber, recycled rubber crumbs and a nylon fiber)

2.05. Material properties complying with the following:

- ASTM C642 density: 1.4 g/cu. in.
- ASTM D412 minimum tensile strength: 4 MPa (580 psi)
- ASTM D2240 shore hardness: 65-75 A

2.06. Installation hardware:

- A. Middle section: six lag bolts 10 mm diameter (3/8"), 100 mm (4") long with flat washers and plastic shields

- B. End section: four lag bolts 10 mm diameter (3/8"), 100 mm (4") long with flat washers and plastic shields

2.07. Distributor:

GNR Technologies Inc., 990 Upton Street, Ville LaSalle, Quebec, Canada, H8R 2T9, Phone (800) 641-4143, Fax (514) 366-6440.

2.08. References:

- ASTM C642 Test Method for Density, Absorption and Voids in Hardened Concrete

- ASTM D412 Test Methods for Rubber Properties in Tension
- ASTM D2240 Test Method for Rubber Property – Durometer Hardness

III. INSTALLATION

3.01. General requirements:

- 3.01.01. Installation and installation site of the rubber speed bumps shall be approved by the City Traffic Engineer.

- 3.01.02. Rubber speed humps may be installed on street sections with a maximum grade of 5%. Higher grades require an Engineering evaluation of traffic safety of such installation.

- 3.01.03. Warning signs should accompany each rubber speed hump and should be placed as per local standards and bylaw, and in such a manner that are clearly visible by approaching motorists.

- 3.01.04. Rubber speed humps shall be installed across the entire width of the street surface, if used for slowing the speed of the motor vehicles, with a distance of one foot from the street curb to facilitate drainage.

- 3.01.05. Rubber speed humps shall be removed before winter if plows are used for snow removal.

- 3.01.06. Installation should be done by a qualified installer.

- 3.01.07. Speed humps should be delivered to the installation site in original packaging containing distributor's name, identification number and other related information.

3.02. Installation restrictions

The rubber speed humps should not be installed in the following locations:

- over manholes or near fire hydrants
- less than 10 feet from driveways
- on sharp horizontal curves due to vehicles stability problems
- on streets with a grade in excess of 5%

3.03. Installation procedure

3.03.01 Installation materials:

- the speed hump's middle sections (for required length of the speed hump)
- the speed hump's end sections (if required)
- lag bolts 10 mm (3/8") diameter, 100 mm (4") long with flat washers and plastic shields: six sets per middle section and four sets per end section

3.03.02 Tools:

- 3/8" dia. carbide tip drill bit for a pilot hole
- 5/8" dia. carbide tip drill bit
- electric drill or pneumatic drill with appropriate power supplies
- 17 mm (11/16") drive socket
- ratchet or alternative power tool
- hammer and rubber mallet
- measuring tape
- chalk line

3.03.03 Execution:

- Secure the work area with appropriate signs and take all the safety precautions required by local standards and bylaws
- Position the rubber speed hump sections in approved location
- Using 3/8" carbide tip drill bit and the installation holes in the speed humps as the guidelines, drill pilot holes in the asphalt or in the concrete paving
- Temporary remove the speed hump sections and re-drill the pilot holes with 5/8" drill bit for the depth equal to the length of the plastic shield
- Insert the plastic shields in the installation holes
- Re-position the rubber speed hump sections and secure them with 3/8" dia. lag bolts and flat washers.
DO NOT OVERTIGHTEN

IV. Maintenance

Rubber speed humps shall be monitored and maintained by responsible party.

The following shall be examined:

- security of installation hardware
- condition of yellow reflective tape

Rubber speed bumps that are excessively worn shall be replaced with new or reconditioned product.

V. Appendix - drawings

5.01. Rubber Speed Hump – Middle Section

5.02. Rubber Speed Hump – End Section