



Technical Specification

I. **Name of Item:** Supply of 24 and 22 Gauge Galvanized Iron (GI) Sheet for Fabrication of Air Distribution Ducts.

Application:

The GI sheets shall be used for fabrication of rectangular air ducts for extending the existing Central Air Conditioning (HVAC) distribution system to the proposed extension of Studio-2 at Doordarshan Kendra, Hyderabad.

Technical Requirements

Sl. No.	Parameter	Specification
1	Material	Galvanized Iron (GI) Sheet
2	Sheet Thickness	24 Gauge (Approx. 0.63 mm)
3	Zinc Coating	Minimum 120 GSM
4	Standard	IS 277:2018 (Latest) or equivalent
5	Duct Fabrication Standard	SMACNA Standards
6	Jointing	TDF Flange System
7	Duct Profile	L Profile Reinforcement as per SMACNA
8	Fabrication	Factory Fabricated
9	Fabrication Type	Box Type Rectangular Duct
10	Surface Finish	Uniform, smooth, corrosion-resistant galvanized finish free from rust, cracks, dents and manufacturing defects
11	Approved Makes	Tata Steel / Jindal Steel (or equivalent approved make)
12	Quality	New, unused, prime quality material conforming to applicable IS Standards

Gauge Selection

For the proposed duct fabrication, the gauge shall conform to the following schedule:

Duct Size	GI Sheet Thickness
0–750 mm	24 Gauge
751–1500 mm	22 Gauge
1501–2100 mm	20 Gauge

Duct Size GI Sheet Thickness

Above 2101 mm 18 Gauge

(For the present requirement, **24 Gauge GI Sheet** shall be used for fabrication of ducts falling within the specified size range.)

Quantity Requirement

- **Area of proposed HVAC ducting:** Approximately **88 Square Metres (22 and 24 Gauge)**
- **Required Material:** 24 Gauge GI Sheet sufficient for fabrication of approximately **88 Sq. Metres** of rectangular HVAC ducting, including cutting, folding, flanging and fabrication losses as applicable.

Scope of Supply

The successful bidder shall supply:

- 22,24 Gauge GI Sheets of approved make.
- Material suitable for factory fabrication of HVAC ducts.
- Sheets free from physical damage, corrosion and manufacturing defects.
- Test certificate/Manufacturer's certificate indicating zinc coating and material conformity, if demanded by the purchaser.

Warranty

The supplied material shall be free from manufacturing defects and shall carry the manufacturer's standard warranty against material defects.

II. Name of Item: Supply of 600 mm × 600 mm Ceiling Diffuser for Central Air Conditioning (HVAC) Distribution System

1. Application

The diffuser shall be suitable for installation in the Central Air Conditioning (HVAC) system for effective and uniform distribution of conditioned air into the proposed extended area of Studio-2 at Doordarshan Kendra, Hyderabad.

2. Technical Specifications

Sl. No.	Parameter	Specification
1	Item	Ceiling Air Diffuser
2	Nominal Size	600 mm × 600 mm
3	Application	Central Air Conditioning / HVAC air distribution
4	Type	Square Ceiling Diffuser
5	Material	Extruded Aluminium
6	Construction	Rigid, robust and factory manufactured
7	Face Pattern	Multi-directional air distribution type
8	Frame	Aluminium frame suitable for ceiling installation
9	Core	Removable/adjustable core suitable for uniform air distribution
10	Finish	Powder Coated
11	Colour	White / as approved by the purchaser
12	Mounting	Suitable for connection to GI sheet duct/collar or flexible duct connection
13	Air Distribution	Four-way / multi-directional discharge suitable for uniform distribution of conditioned air
14	Surface Finish	Smooth, even and free from dents, scratches, burrs and manufacturing defects
15	Quality	New, unused and of approved make
16	Warranty	Standard manufacturer's warranty

3. Material and Construction

The diffuser shall be manufactured from **good-quality extruded aluminium sections** and shall be suitable for continuous use in a Central Air Conditioning system. The construction shall be rigid and dimensionally stable, with a properly finished frame and diffuser core.

The diffuser shall be designed to provide **uniform and low-velocity distribution of conditioned air** into the occupied space, avoiding objectionable drafts and ensuring effective air mixing.

4. Size

The overall nominal face size of the diffuser shall be:

600 mm × 600 mm

The diffuser shall be suitable for installation in a standard false-ceiling/grid ceiling arrangement or as directed at site and shall be compatible with the associated HVAC duct/collar arrangement.

5. Finish

The complete visible surface shall be provided with a **uniform powder-coated finish**, preferably white, suitable for interior HVAC applications. The finish shall be smooth, durable and free from visible manufacturing defects.

6. Installation

The diffuser shall be supplied complete with all necessary standard fixing/accessories required for proper installation and connection to the Central AC duct distribution system.

The diffuser shall be securely mounted and aligned with the ceiling surface, and the connection shall be suitably sealed to prevent leakage of conditioned air.

7. Inspection and Acceptance

The supplied diffusers shall be inspected by the consignee for:

- Compliance with the specified size of **600 mm × 600 mm**.
- Material and construction quality.
- Proper alignment and rigidity of frame and core.
- Quality and uniformity of powder coating.
- Freedom from dents, scratches, burrs and other visible defects.
- Compatibility with the proposed Central AC duct distribution system.

8. Quantity

As per requirement/site measurement. The diffuser shall be supplied as a complete assembly, ready for installation in the Central Air Conditioning distribution system.

III. Name of Item: Supply of 600 mm × 600 mm Ceiling Diffuser with Damper for Central Air Conditioning (HVAC) Distribution System

1. Application

The diffuser with damper shall be suitable for installation in the Central Air Conditioning (HVAC) system for effective, uniform and adjustable distribution of conditioned air in the proposed extended area of Studio-2 at Doordarshan Kendra, Hyderabad.

2. Technical Specifications

Sl. No.	Parameter	Specification
1	Item	Ceiling Air Diffuser with Damper
2	Nominal Face Size	600 mm × 600 mm
3	Application	Central Air Conditioning / HVAC Air Distribution
4	Type	Square Ceiling Diffuser
5	Material	Extruded Aluminium
6	Construction	Rigid, robust and factory manufactured
7	Diffuser Face	Multi-directional air distribution type
8	Frame	Extruded aluminium frame suitable for ceiling installation
9	Core	Removable/adjustable diffuser core suitable for uniform air distribution
10	Damper	Volume Control Damper suitable for regulation and balancing of air quantity
11	Damper Material	Aluminium / GI construction suitable for HVAC application
12	Damper Operation	Adjustable for regulation of airflow
13	Finish	Powder Coated
14	Colour	White / as approved by the purchaser
15	Mounting	Suitable for connection to GI sheet duct/collar or flexible duct connection
16	Air Distribution	Four-way / multi-directional discharge suitable for uniform distribution of conditioned air

Sl. No.	Parameter	Specification
17	Surface Finish	Smooth, even and free from dents, scratches, burrs and manufacturing defects
18	Quality	New, unused and of approved make
19	Warranty	Standard manufacturer's warranty

3. Material and Construction

The diffuser shall be manufactured from **good-quality extruded aluminium sections** and shall be suitable for continuous operation in a Central Air Conditioning system.

The diffuser shall be provided with an integral/suitable **volume control damper** at the duct connection to facilitate regulation and balancing of the quantity of conditioned air supplied through each diffuser.

The complete assembly shall be rigid, dimensionally stable and properly finished. The diffuser core and frame shall be securely assembled and shall not produce rattling or vibration during normal operation.

4. Size

The overall nominal face size of the diffuser shall be:

600 mm × 600 mm

The diffuser with damper shall be suitable for installation in a standard false-ceiling/grid ceiling arrangement and shall be compatible with the associated HVAC duct/collar arrangement.

5. Damper

The damper shall be provided for **airflow regulation and balancing** and shall permit adjustment of the air quantity supplied through the diffuser.

The damper shall be securely integrated with the diffuser/duct connection and shall be easily accessible for adjustment during HVAC commissioning and balancing.

6. Finish

The complete visible surface shall be provided with a **uniform powder-coated finish**, preferably white, suitable for interior HVAC applications. The finish shall be smooth, durable and free from visible manufacturing defects.

7. Installation

The diffuser with damper shall be supplied complete with all necessary standard fixing accessories required for proper installation and connection to the Central AC duct distribution system.

The diffuser shall be securely mounted and properly aligned with the ceiling surface. The connection between the diffuser/damper and duct shall be suitably sealed to minimize leakage of conditioned air.

8. Inspection and Acceptance

The supplied diffuser with damper shall be inspected by the consignee for:

- Compliance with the specified size of **600 mm × 600 mm**.
- Material and construction quality.
- Proper alignment and rigidity of the frame and diffuser core.
- Proper functioning and adjustability of the damper.
- Quality and uniformity of powder coating.
- Freedom from dents, scratches, burrs and other visible defects.
- Compatibility with the proposed Central AC duct distribution system.

9. Quantity

As per requirement/site measurement.

The diffuser shall be supplied as a **complete diffuser-with-damper assembly**, ready for installation in the Central Air Conditioning distribution system.

IV. Name of Item : Supply and Installation of Thermal Insulation for External Surface of HVAC Ducting

1. Application

The thermal insulation shall be suitable for application on the **outer surface of GI sheet ducting** forming part of the Central Air Conditioning (HVAC) distribution system for the proposed extension of Studio-2 at Doordarshan Kendra, Hyderabad.

The insulation shall minimize heat gain/loss through the duct surface, prevent condensation on the external surface of the chilled-air ducting and improve the overall thermal efficiency of the Central AC distribution system.

2. Technical Specifications

Sl. No.	Parameter	Specification
1	Item	Thermal Insulation for External Surface of HVAC Ducting
2	Application	External insulation of Central AC / HVAC ducting
3	Duct Type	GI Sheet Rectangular Air Duct
4	Insulation Material	Closed-cell elastomeric rubber insulation / equivalent approved HVAC duct insulation
5	Form	Flexible sheet/roll suitable for duct insulation
6	Thermal Conductivity	Suitable for HVAC duct application and as per applicable manufacturer's standard
7	Thickness	Minimum 19 mm or as specified by the HVAC design requirement
8	Moisture Resistance	Closed-cell structure with low water absorption and suitable for preventing condensation
9	Surface Finish	Factory-finished insulation surface suitable for external duct application
10	Adhesive	Compatible approved adhesive suitable for bonding insulation to GI duct surface
11	Joint Treatment	All joints and seams shall be properly sealed to provide continuous thermal

Sl. No.	Parameter	Specification
		insulation
12	Installation	Neat, continuous and uniform application over the external surface of the duct
13	Fire Performance	Insulation shall have suitable fire-retardant characteristics and comply with applicable standards
14	Quality	New, unused and free from defects
15	Warranty	Standard manufacturer's warranty

3. Material and Construction

The insulation shall be suitable for **external application over GI sheet HVAC ducts carrying conditioned air**.

The insulation shall have a closed-cell structure and shall provide effective thermal resistance against heat transfer. It shall also be capable of resisting moisture penetration and condensation under normal Central AC operating conditions.

The insulation material shall be flexible enough to follow the contours of rectangular ductwork and shall provide a continuous and uniform insulating layer without gaps, voids or exposed duct surfaces.

4. Installation Requirements

The GI duct surface shall be clean, dry and free from dust, oil, grease and other contaminants before application of insulation.

The insulation shall be securely bonded to the external duct surface using a compatible adhesive recommended by the insulation manufacturer. All joints, seams and corners shall be properly sealed to ensure continuity of the insulation and prevent moisture ingress.

Special care shall be taken at duct corners, joints, supports, flanges and other discontinuities to avoid thermal bridges and condensation.

The finished insulation shall be neat, properly aligned and free from wrinkles, open joints, gaps, sagging or damaged portions.

5. Scope of Work

The scope shall include **supply and installation** of thermal insulation over the external surface of the Central AC ducting, including:

- Supply of approved thermal insulation material.

- Cleaning/preparation of the duct surface.
- Application of suitable adhesive.
- Cutting and fixing of insulation sheets/rolls.
- Treatment and sealing of all longitudinal and transverse joints.
- Proper insulation of corners, bends, flanges and other applicable duct portions.
- Necessary consumables and accessories required for complete installation.
- Making good of any damaged insulation during installation.

6. Quantity

Required Quantity: 100 Sq. Metres

The quantity shall be measured based on the actual external surface area of the HVAC ducting insulated and completed at site.

7. Inspection and Acceptance

The completed insulation shall be inspected by the consignee for:

- Compliance with the specified insulation material and thickness.
- Proper bonding with the GI duct surface.
- Uniform and continuous coverage of the duct.
- Proper sealing of all joints and seams.
- Absence of gaps, exposed duct surfaces, wrinkles or loose portions.
- Proper treatment of corners, joints and duct accessories.
- Overall workmanship and neatness.

8. Measurement and Payment

Measurement shall be made in **Square Metres (Sq. m)** of the external duct surface actually insulated and accepted by the consignee.

The quoted rate shall be inclusive of the cost of insulation material, adhesive, joint-sealing materials, labour, tools, tackles, consumables and all other accessories necessary for satisfactory completion of the work.

V. Name of Item :Supply and Installation of Nitrile Rubber Sheets for Internal Acoustic Insulation of Central AC Ducting

1. Application

Nitrile Rubber sheets shall be provided as **internal acoustic lining of the GI sheet ducting** forming part of the Central Air Conditioning distribution system for the proposed extension of Studio-2 at Doordarshan Kendra, Hyderabad.

The primary purpose of the internal lining shall be to **reduce airflow-generated noise and duct-borne sound transmission** through the AC duct system and to ensure quieter operation of the Central AC system.

2. Technical Specifications

Sl. No.	Parameter	Specification
1	Item	Nitrile Rubber Sheet for Internal Acoustic Insulation of AC Duct
2	Application	Internal acoustic lining of Central AC / HVAC ducting
3	Material	Closed-cell Nitrile Rubber / Elastomeric Rubber Sheet
4	Form	Flexible sheet suitable for internal duct lining
5	Thickness	Minimum 12 mm
6	Acoustic Application	Suitable for attenuation of airflow-generated and duct-borne noise
7	Structure	Closed-cell, flexible and resilient
8	Moisture Resistance	Moisture-resistant and suitable for HVAC duct application
9	Surface	Smooth, durable and suitable for internal duct installation
10	Adhesive	Compatible adhesive recommended by the manufacturer for bonding to GI sheet
11	Joint Treatment	Joints and edges shall be properly butted and sealed
12	Fire Performance	Fire-retardant grade suitable for HVAC/air-conditioning applications
13	Installation	Continuous internal lining without gaps, loose edges or exposed duct surface

Sl. No.	Parameter	Specification
14	Quality	New, unused and free from manufacturing defects
15	Warranty	Standard manufacturer's warranty

3. Material Requirements

The Nitrile Rubber sheet shall be of **good quality, closed-cell elastomeric construction** and shall be suitable for use as an internal acoustic lining in air-conditioning ducts.

The material shall be flexible enough to conform to the internal surfaces of rectangular GI sheet ducts and shall remain securely bonded during normal operation of the Central AC system.

The material shall provide effective acoustic absorption/attenuation to reduce noise generated by air movement, fans and other HVAC equipment and transmitted through the ductwork.

4. Installation Requirements

The internal surfaces of the GI ducts shall be properly cleaned and made free from dust, oil, grease and other contaminants before installation.

The Nitrile Rubber sheets shall be cut to the required dimensions and securely fixed to the internal surface of the duct using a suitable manufacturer-recommended adhesive.

The sheets shall be installed continuously and neatly, with joints closely butted and properly sealed. There shall be no gaps, loose edges, wrinkles or exposed portions of the GI duct surface.

Special attention shall be given to duct corners, bends, joints and other locations to ensure continuous acoustic treatment.

The completed internal lining shall be firmly secured and shall not become loose, detached or sag during operation. It shall also be installed in such a manner that it does not adversely obstruct the designed airflow through the duct.

5. Scope of Supply and Installation

The quoted rate shall include:

- Supply of Nitrile Rubber acoustic insulation sheets.
- Cutting and sizing of sheets to suit the duct dimensions.
- Cleaning and preparation of internal duct surfaces.
- Supply and application of suitable adhesive.
- Fixing of sheets to the internal duct surface.
- Treatment and sealing of joints, edges and corners.
- Necessary labour, tools, tackles and consumables.
- Complete installation ready for operation.

6. Quantity

Required Quantity: 100 Sq. Metres

The quantity shall be measured based on the actual internal duct surface area provided with Nitrile Rubber acoustic lining and accepted by the consignee.

7. Inspection and Acceptance

The work shall be inspected for:

- Compliance with the specified Nitrile Rubber sheet material.
- Specified thickness and workmanship.
- Firm and uniform adhesion to the duct surface.
- Continuous coverage of the required internal duct area.
- Proper treatment of joints, corners and edges.
- Absence of gaps, loose portions and exposed duct surfaces.
- Proper acoustic lining without obstruction to the designed airflow.
- Overall quality and neatness of installation.

8. Measurement

Measurement shall be made in **Square Metres (Sq. m)** of the internal duct surface actually lined with Nitrile Rubber acoustic insulation and accepted by the consignee.

Quantity: 100 Sq. Metres.

VI. Name of Item :Supply of SR 505 Rubber Insulation Adhesive/Compound for Central AC Insulation Works

1. Application

SR 505 rubber insulation adhesive/compound shall be suitable for use in the **Central Air Conditioning (HVAC) duct insulation works** for bonding and securing rubber-based insulation materials to GI sheet duct surfaces and for treatment of insulation joints, wherever required.

The material shall be compatible with the Nitrile Rubber/Elastomeric Rubber insulation used in the Central AC distribution system.

2. Technical Specifications

Sl. No.	Parameter	Specification
1	Item	SR 505 Rubber Insulation Adhesive/Compound

Sl. No.	Parameter	Specification
2	Application	HVAC / Central AC insulation works
3	Material Type	Rubber-based insulation adhesive/compound
4	Application	Bonding of Nitrile Rubber/Elastomeric insulation to GI sheet duct surfaces
5	Compatibility	Suitable for Nitrile Rubber / Elastomeric Rubber insulation and GI sheet surfaces
6	Form	Ready-to-use liquid/paste form as supplied by the manufacturer
7	Adhesion	Shall provide firm and durable bonding between insulation material and duct surface
8	Moisture Resistance	Suitable for HVAC applications and resistant to moisture under normal operating conditions
9	Joint Treatment	Suitable for sealing/treatment of insulation joints and edges, wherever applicable
10	Application Method	Brush/roller/trowel or as recommended by the manufacturer
11	Quality	New, unused and in original manufacturer's sealed container
12	Packaging	Suitable manufacturer's standard packaging
13	Quantity	40 Litres

3. Material Requirements

The SR 505 rubber insulation adhesive/compound shall be suitable for use with **Nitrile Rubber/Elastomeric Rubber insulation materials** employed in Central AC ducting works.

The adhesive shall provide adequate and durable adhesion between the insulation material and the GI sheet duct surface under normal HVAC operating conditions.

The material shall be free from lumps, foreign matter and visible contamination and shall be supplied in its original, properly sealed manufacturer's packaging.

4. Application Requirements

The GI duct surface shall be clean, dry and free from dust, oil, grease and other contaminants before application.

The SR 505 adhesive/compound shall be applied in accordance with the **manufacturer's recommended application procedure**, including recommended surface preparation, application quantity and curing/drying period.

The insulation shall be firmly pressed onto the adhesive-coated surface to ensure proper contact and uniform bonding. Joints and edges shall be properly treated wherever required to ensure continuity of the insulation system.

5. Scope of Supply

The quoted rate shall include:

- Supply of SR 505 rubber insulation adhesive/compound.
- Manufacturer's standard packaging.
- Material suitable for use with the specified Nitrile Rubber insulation.
- All necessary handling and application requirements associated with the supplied material.

6. Quantity

Required Quantity: 40 Litres

The material shall be supplied in suitable container sizes, with the total quantity aggregating to **40 litres**.

7. Inspection and Acceptance

The material shall be inspected for:

- Correct product identification.
- Quantity supplied.
- Original and sealed manufacturer's packaging.
- Shelf life/validity of the material.
- Compatibility with Nitrile Rubber insulation.
- Compliance with the manufacturer's product specifications.
- Absence of contamination, deterioration or visible defects.

8. Manufacturer's Technical Data

The successful bidder shall, wherever required, furnish the **manufacturer's Technical Data Sheet (TDS)** for SR 505, indicating application method, coverage, drying/curing time, storage requirements and other relevant technical properties.

The material shall be used strictly in accordance with the manufacturer's recommendations.

VII. Name of Item :Supply of 30 mm × 6 mm Galvanized Nut, Bolt with Washer for Central AC Ducting Works

1. Application

The galvanized nut, bolt and washer assembly shall be suitable for use in the **Central Air Conditioning (HVAC) ducting works**, including fixing, joining and securing GI sheet ducts, duct flanges, supports, accessories and associated components.

2. Technical Specifications

Sl. No.	Parameter	Specification
1	Item	Nut, Bolt with Washer
2	Size	30 mm × 6 mm
3	Bolt Length	30 mm
4	Nominal Bolt Diameter	6 mm
5	Material	Steel
6	Surface Treatment	Hot-dip / zinc galvanized suitable for HVAC applications
7	Nut	Matching galvanized hexagonal nut
8	Washer	Matching galvanized plain washer
9	Assembly	Bolt complete with matching nut and washer
10	Application	Central AC / HVAC ducting and associated fixing works
11	Corrosion Resistance	Zinc-coated surface suitable for protection against normal atmospheric corrosion
12	Workmanship	Threads shall be clean, properly formed and free from defects
13	Quality	New, unused and free from rust, damage and manufacturing defects
		15 Kg
14	Quantity	

3. Material Requirements

The bolts, nuts and washers shall be manufactured from good-quality steel and shall be provided with a **galvanized zinc coating** for corrosion protection.

The bolt shall have a nominal diameter of **6 mm** and a length of **30 mm**. Each bolt shall be supplied with a compatible galvanized hexagonal nut and galvanized washer.

The threads shall be properly formed and shall permit smooth tightening and removal without cross-threading or excessive resistance.

4. Galvanizing

The complete fastener assembly shall have a uniform galvanized surface suitable for use with GI sheet ducting and HVAC installations.

The galvanized coating shall be firmly bonded to the steel surface and shall be free from peeling, flaking, excessive roughness or visible corrosion.

5. Scope of Supply

The quoted rate shall include:

- 30 mm × 6 mm galvanized bolts.
- Matching galvanized nuts.
- Matching galvanized washers.
- Proper packing and handling.
- Supply of the complete nut-bolt-washer assembly suitable for HVAC ducting works.

6. Quantity

Required Quantity: 15 Kg

The material shall be supplied by weight, with the total quantity aggregating to **15 kg**.

7. Inspection and Acceptance

The supplied material shall be inspected for:

- Compliance with specified size of **30 mm × 6 mm**.
- Proper matching of nut, bolt and washer.
- Quality and uniformity of galvanization.
- Proper thread formation and smooth tightening.
- Absence of rust, cracks, deformation or manufacturing defects.
- Overall workmanship and suitability for HVAC ducting applications.

8. Measurement and Payment

Measurement shall be made in **Kilograms (Kg)** based on the actual quantity of galvanized nut, bolt and washer assemblies supplied and accepted by the consignee.

Required Quantity: 15 Kg.

VIII. Name of Item: Supply of 12 mm × 75 mm Fasteners for Central Air Conditioning (HVAC) Ducting Works

1. Application

The fasteners shall be suitable for use in the **Central Air Conditioning (HVAC) ducting system** for securing GI sheet ducts, duct supports, brackets, hangers and other associated components to the building structure, wherever required.

2. Technical Specifications

Sl. No.	Parameter	Specification
1	Item	Fasteners
2	Size	12 mm × 75 mm
3	Nominal Diameter	12 mm
4	Length	75 mm
5	Type	Heavy-duty mechanical fixing fastener suitable for HVAC installation
6	Material	High-strength steel
7	Surface Finish	Zinc plated / galvanized for corrosion resistance
8	Application	Fixing of HVAC duct supports, brackets, hangers and associated components
9	Load Capacity	Suitable for the intended duct/support loading conditions
10	Installation	Suitable for fixing to concrete/masonry structure as applicable
11	Quality	New, unused and free from rust, deformation and manufacturing defects
12	Quantity	50 Nos.

3. Material Requirements

The fasteners shall be manufactured from **good-quality high-strength steel** and shall be suitable for securely fixing HVAC ducting supports and associated components.

The fasteners shall be capable of providing firm and reliable anchorage under normal operating and service conditions of the Central AC ducting system.

4. Surface Protection

The fasteners shall have a suitable **zinc-plated/galvanized finish** to provide protection against corrosion and shall be suitable for use in the building/HVAC environment.

The coating shall be uniform and free from peeling, flaking, excessive rust or other visible defects.

5. Installation

The fasteners shall be suitable for installation in concrete/masonry or other structural surfaces, as applicable to the site condition.

Installation shall be carried out using appropriate drilling and fixing tools and in accordance with the manufacturer's recommended installation procedure. The fasteners shall be securely anchored without damaging the surrounding structure.

6. Scope of Supply

The quoted rate shall include:

- Supply of **12 mm × 75 mm fasteners**.
- Suitable galvanized/zinc-plated finish.
- Necessary standard accessories, if integral to the selected fastener type.
- Proper packing and handling.
- Material suitable for complete HVAC duct support/fixing works.

7. Quantity

Required Quantity: 50 Numbers

8. Inspection and Acceptance

The supplied fasteners shall be inspected for:

- Compliance with specified size of **12 mm × 75 mm**.
- Material quality and strength.
- Quality and uniformity of surface coating.
- Proper dimensions and workmanship.
- Absence of rust, cracks, deformation or manufacturing defects.
- Suitability for securing HVAC duct supports and associated components.

9. Measurement

Measurement shall be made in **Numbers (Nos.)** based on the actual quantity of fasteners supplied and accepted by the consignee.

Required Quantity: 50 Nos.

IX. Name of Item :Supply of 25 mm × 3 mm Felt for Central Air Conditioning (HVAC) Ducting Works

1. Application

The felt shall be suitable for use in the **Central Air Conditioning (HVAC) ducting system**, particularly for providing cushioning, sealing, vibration isolation and reduction of air leakage at duct joints, flanges, supports and other associated ducting connections, as required at site.

2. Technical Specifications

Sl. No.	Parameter	Specification
1	Item	Felt Strip
2	Size	25 mm × 3 mm
3	Width	25 mm
4	Thickness	3 mm
5	Form	Continuous strip/roll
6	Material	Good-quality industrial-grade felt suitable for HVAC applications
7	Application	Duct joint sealing, cushioning and vibration isolation
8	Flexibility	Flexible and suitable for application along duct flanges and joints
9	Surface	Uniform, clean and free from tears, holes and manufacturing defects
10	Installation	Suitable for fixing between mating duct/flange surfaces
11	Quality	New, unused and free from defects
12	Quantity	50 RMT

3. Material Requirements

The felt shall be of **good-quality, dense and flexible construction**, suitable for use in HVAC ducting applications.

The material shall be capable of providing a resilient cushioning layer between mating surfaces and shall assist in reducing air leakage, vibration and noise transmission at duct joints.

The felt shall have a uniform width of **25 mm** and thickness of **3 mm** throughout its supplied length.

4. Installation Requirements

The duct/flange surfaces shall be clean and free from dust, oil, grease and other contaminants before installation.

The felt strip shall be accurately cut to the required length and placed continuously along the mating duct/flange surfaces. It shall be properly aligned without excessive overlapping, gaps or loose portions.

The installation shall ensure proper compression of the felt between the mating surfaces to provide an effective seal and cushioning effect.

5. Scope of Supply

The quoted rate shall include:

- Supply of 25 mm × 3 mm felt strips.
- Supply in suitable continuous rolls.
- Cutting and handling as required for HVAC duct installation.
- Necessary consumables/accessories required for proper fixing, wherever applicable.
- Material suitable for complete duct joint sealing/cushioning works.

6. Quantity

Required Quantity: 50 Running Metres (RMT)

The material shall be supplied in continuous rolls of suitable length, with the total quantity aggregating to **50 RMT**.

7. Inspection and Acceptance

The supplied felt shall be inspected for:

- Compliance with specified dimensions of **25 mm × 3 mm**.
- Uniformity of width and thickness.
- Flexibility and suitability for duct joint application.
- Absence of tears, holes, contamination or other defects.
- Overall quality and workmanship.

8. Measurement

Measurement shall be made in **Running Metres (RMT)** based on the actual length of felt strip supplied and accepted by the consignee.

Required Quantity: 50 RMT.

X. Name of Item: Supply of 50 mm Aluminium Foil Tape for Central Air Conditioning (HVAC) Ducting Works

1. Application

The Aluminium Tape shall be suitable for use in the **Central Air Conditioning (HVAC) ducting and insulation works**, particularly for sealing insulation joints, duct joints, seams, edges and other applicable locations to provide an effective and continuous vapour/air-tight barrier.

2. Technical Specifications

Sl. No.	Parameter	Specification
1	Item	Aluminium Foil Tape
2	Width	50 mm
3	Type	Self-adhesive Aluminium Foil Tape
4	Material	Aluminium foil with pressure-sensitive adhesive backing
5	Application	HVAC ducting and thermal/acoustic insulation works
6	Adhesion	Strong and durable adhesion to GI sheet, insulation and other compatible HVAC surfaces
7	Surface	Smooth, uniform aluminium foil surface
8	Moisture Resistance	Resistant to moisture and suitable for HVAC applications
9	Temperature Resistance	Suitable for normal operating temperatures of Central AC ducting and insulation systems
10	Flexibility	Flexible enough to conform to duct joints, corners and insulation surfaces
11	Finish	Aluminium foil finish
12	Quality	New, unused and free from wrinkles, tears, holes and manufacturing defects

Sl. No.	Parameter	Specification
13	Packaging	Manufacturer's standard roll packaging
14	Quantity	15 Nos.

3. Material Requirements

The tape shall consist of **good-quality aluminium foil with a pressure-sensitive adhesive backing**, suitable for HVAC ducting and insulation applications.

The aluminium foil shall be uniform and shall not have pinholes, cracks, tears or other visible defects. The adhesive shall provide firm and durable bonding to compatible GI sheet and insulation surfaces.

4. Application and Installation

The surfaces on which the tape is to be applied shall be clean, dry and free from dust, oil, grease and loose particles.

The tape shall be applied smoothly over the required joint or seam and firmly pressed to ensure proper adhesion. Overlapping shall be provided wherever necessary to ensure continuity and prevent air/moisture leakage.

Particular care shall be taken at duct corners, insulation joints, seams and edges to ensure proper sealing without wrinkles, air pockets or loose portions.

5. Scope of Supply

The quoted rate shall include:

- Supply of **50 mm wide Aluminium Foil Tape**.
- Self-adhesive backing suitable for HVAC applications.
- Manufacturer's standard roll packaging.
- Material suitable for sealing Central AC ducting and insulation joints.

6. Quantity

Required Quantity: 15 Nos.

The tape shall be supplied in manufacturer's standard roll length, with the total quantity being **15 rolls/numbers**.

7. Inspection and Acceptance

The supplied tape shall be inspected for:

- Compliance with specified **50 mm width**.
- Quality and uniformity of aluminium foil.
- Adhesive quality and bonding strength.
- Absence of tears, holes, wrinkles and other defects.
- Suitability for HVAC ducting and insulation applications.
- Proper manufacturer's packaging and identification.

8. Measurement

Measurement shall be made in **Numbers (Nos.)** based on the actual quantity of Aluminium Tape rolls supplied and accepted by the consignee.

Required Quantity: 15 Nos.

XI. Name of Item: Supply of Full Threaded Galvanized 10 mm Rods with Nut and Double Washer for Central Air Conditioning (HVAC) Ducting Works

1. Application

The full threaded galvanized rods shall be suitable for use in the **Central Air Conditioning (HVAC) ducting system** for suspending and supporting GI sheet air ducts, duct supports, brackets and associated HVAC components from the building structure.

2. Technical Specifications

Sl. No.	Parameter	Specification
1	Item	Full Threaded Galvanized Rod with Nut and Double Washer
2	Rod Diameter	10 mm
3	Rod Type	Fully threaded / continuous threaded rod
4	Material	High-strength steel
5	Surface Treatment	Galvanized / zinc coated
6	Nut	Matching galvanized hexagonal nut
7	Washer	Two matching galvanized plain washers per fixing arrangement
8	Application	Suspension/support of HVAC ducting and associated components
9	Thread	Continuous thread along the complete rod length
10	Corrosion Protection	Zinc galvanized finish suitable for HVAC installation environment

Sl. No.	Parameter	Specification
11	Construction	Straight, rigid and free from bends or deformation
12	Quality	New, unused and free from rust, cracks and manufacturing defects
13	Quantity	60 Running Metres (RMT)

3. Material Requirements

The threaded rods shall be manufactured from **good-quality steel** and shall be fully threaded throughout their length. The rods shall have a nominal diameter of **10 mm** and shall be suitable for supporting HVAC ductwork.

Each fixing arrangement shall be provided with a **matching galvanized nut and two galvanized washers** to ensure proper load distribution and secure fixing of duct supports.

4. Galvanizing

The rods, nuts and washers shall be provided with a suitable **zinc galvanized coating** for protection against corrosion.

The galvanized surface shall be uniform and free from peeling, flaking, excessive roughness, rust or other visible defects.

5. Installation

The threaded rods shall be cut to the required length at site, as necessary, and securely fixed to the structural support system using suitable approved anchoring arrangements.

The rods shall be installed vertically and properly aligned wherever used for duct suspension. Nuts and double washers shall be tightened adequately to ensure secure and stable support of the ductwork.

The supporting arrangement shall be installed without causing undue deformation or damage to the GI duct.

6. Scope of Supply

The quoted rate shall include:

- Supply of **10 mm full threaded galvanized rods**.
- Matching galvanized nuts.
- Matching galvanized double washers.
- Cutting and handling as required for installation.
- All necessary standard accessories required for proper fixing, wherever applicable.
- Material suitable for complete HVAC duct suspension/support works.

7. Quantity

Required Quantity: 60 Running Metres (RMT)

The total length of galvanized threaded rod supplied shall be **60 RMT**.

8. Inspection and Acceptance

The supplied material shall be inspected for:

- Compliance with specified **10 mm diameter**.
- Full threading throughout the rod length.
- Quality and uniformity of galvanization.
- Proper matching of nuts and washers.
- Straightness and dimensional accuracy.
- Absence of rust, cracks, bends or manufacturing defects.
- Suitability for HVAC duct suspension and support applications.

9. Measurement

Measurement shall be made in **Running Metres (RMT)** based on the actual length of 10 mm full threaded galvanized rod supplied and accepted by the consignee.

Required Quantity: 60 RMT.

XII. Name of Item :Supply of 40 mm × 40 mm MS Angle for Central Air Conditioning (HVAC) Ducting Works

1. Application

The MS Angle shall be suitable for use in the **Central Air Conditioning (HVAC) ducting system** for fabrication of duct supports, frames, brackets, stiffeners, hangers and other associated supporting arrangements required for the installation of GI sheet air ducts.

2. Technical Specifications

Sl. No.	Parameter	Specification
1	Item	Mild Steel (MS) Angle
2	Size	40 mm × 40 mm
3	Length	500 mm per piece

Sl. No.	Parameter	Specification
4	Section	Equal Angle
5	Material	Mild Steel
6	Application	HVAC duct support, framing and associated fabrication works
7	Surface Finish	Clean MS surface suitable for fabrication and protective coating
8	Construction	Straight, rigid and free from excessive bends, cracks and laminations
9	Fabrication	Suitable for cutting, drilling, welding and bolting
10	Quality	New, unused and free from manufacturing defects
11	Quantity	25 Running Metres (RMT)

3. Material Requirements

The MS Angle shall be manufactured from good-quality **Mild Steel** and shall have an equal angle section of **40 mm × 40 mm**.

Each supplied piece shall have a nominal length of **500 mm**, unless otherwise required for fabrication at site.

The angle shall be straight, dimensionally uniform and suitable for fabrication of supports and frames associated with the Central AC ducting system.

4. Fabrication Requirements

The MS Angles shall be suitable for:

- Cutting to required dimensions.
- Drilling of holes for bolted connections.
- Welding for fabrication of support frames and brackets.
- Fabrication of duct supports, frames and stiffening arrangements.

All fabricated supports shall be rigid and capable of safely supporting the associated HVAC ductwork under normal operating conditions.

5. Surface Protection

After fabrication, the MS angle/support assembly shall be suitably protected against corrosion by applying an appropriate **anti-corrosive primer and protective paint/coating**, wherever required by the site conditions.

The surface shall be cleaned of loose scale, rust, oil and other contaminants before application of protective coating.

6. Scope of Supply

The quoted rate shall include:

- Supply of **40 mm × 40 mm MS Equal Angles**.
- Individual pieces of approximately **500 mm length**.
- Cutting and handling as required for HVAC support fabrication.
- Material suitable for welding, drilling and bolting.
- Necessary standard handling and delivery requirements.

7. Quantity

Required Quantity: 25 Running Metres (RMT)

The total required length of MS Angle shall be **25 RMT**.

Where supplied in 500 mm pieces, the equivalent requirement is approximately **50 pieces of 500 mm length**, subject to actual site requirement and measurement.

8. Inspection and Acceptance

The supplied material shall be inspected for:

- Compliance with specified **40 mm × 40 mm** angle size.
- Length and dimensional accuracy.
- Straightness and uniformity of section.
- Quality of Mild Steel.
- Absence of cracks, excessive rust, bends, laminations or other defects.
- Suitability for HVAC duct support and fabrication works.

9. Measurement

Measurement shall be made in **Running Metres (RMT)** based on the actual length of MS Angle supplied and accepted by the consignee.

Required Quantity: 25 RMT.