

GenieClip WATT

3-Part Specification Guide

Specifier Notes: This product guide specification is written according to the Construction Specifications Institute (CSI) 3-Part Format, including MasterFormat, SectionFormat, and PageFormat, contained in the CSI Manual of Practice.

The section must be carefully reviewed and edited by the Architect to meet the requirements of the project and local building code. Coordinate this section with other specification sections and the drawings.

Delete all "Specifier Notes" when editing this section.

SECTION 23 05 48

Vibration and Seismic Controls for HVAC Piping and Equipment

*Specifier Notes: This section covers **Pliteq, Inc. "GenieClip WATT"** a hanger made with recycled rubber material for acoustical separation (de-coupling) in ceilings. Consult **Pliteq Inc.** for assistance in editing this section for the specific application.*

Part 1.0 – General

1.1 : Summary

1.1.1 : The work of this section includes:

1.1.1.1 : **GenieClip WATT** hangers are heavy-duty vibration isolation hangers that incorporate non- linear isolators made from recycled rubber elastomeric that is housed in a new design of steel housing with two sides bent down, considerably increasing the rigidity of the steel housing itself. The hangers are shipped fully assembled and ready for installation in threaded rod suspension systems.

1.1.2 : Related Sections: Section(s) related to this article include:

Specifier Notes: Edit the following list of related sections as required for the project. List other sections with work directly related to this section.

- 1.1.2.1 : Section 13 48 13 – Manufactured Sound and Vibration Control Components
- 1.1.2.2 : Section 22 05 48 – Vibration and Seismic Controls for Plumbing Piping and Equipment
- 1.1.2.3 : Section 26 05 48 - Vibration and Seismic Controls for Electrical Systems

1.2 : References

Specifier Notes: Edit the following list of related sections as required for the project. List other sections with work directly related to this section.

1.2.1 : Standards listed by reference, including revisions by issuing authority, form a part of this specification section to extent indicated. Standards listed are identified by issuing authority, authority abbreviation, designation number, title, or other designation established by issuing authority. Standards subsequently referenced herein are referred to by issuing authority and standard designation.

1.2.2 : American Society for Testing and Materials (ASTM)

- 1.2.2.1 : ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements
- 1.2.2.2 : ASTM D297 - Standard Test Method for Rubber Products - Chemical Analysis
- 1.2.2.3 : ASTM E336 - Standard Test Method for Measurement of Airborne Sound Insulation in Buildings
- 1.2.2.4 : ASTM D454 – Standard Test Method for Rubber Deterioration by Heat and Air Pressure
- 1.2.2.5 : ASTM E477 - Standard Test Method for Measuring Acoustical and Airflow Performance of Duct Liner Materials and Fabricated Silencers
- 1.2.2.6 : ASTM E492 - Standard Test Method for Laboratory Measurement of Impact Sound Transmission Through Floor-Ceiling Assemblies Using the Tapping Machine
- 1.2.2.7 : ASTM E596 - Standard Test Method for Laboratory Measurement of the Noise Reduction of Sound-Isolating Enclosures
- 1.2.2.8 : ASTM E756 – Standard Test Method for Measuring Vibration-Damping Properties of Material
- 1.2.2.9 : ASTM D945 – Standard Test Method for Rubber Properties in Compression or Shear (Mechanical Oscillograph)
- 1.2.2.10 : ASTM E1007 - Standard Test Method for Field Measurement of Tapping Machine Impact Sound Transmission Through Floor-Ceiling Assemblies and Associated Support Structures
- 1.2.2.11 : ASTM E2179 - Standard Test Method for Laboratory Measurement of the Effectiveness of Floor Coverings in Reducing Impact Sound Transmission Through Concrete Floors

1.2.3 : American National Standards Institute (ANSI)

- 1.2.3.1 : ANSI S1.4 – Sound Level Meters
- 1.2.3.2 : ANSI S1.8 – Reference Quantities for Acoustical Levels
- 1.2.3.3 : ANSI S1.13 – Methods of the Measurement of Sound Pressure Levels in Air
- 1.2.3.4 : ANSI S12.36 – Survey Methods for the Determination of Sound Power Levels of Noise Sources

1.2.4 : Air Movement and Control Association International, Inc. (AMCA)

- 1.2.4.1 : AMCA 300 – Reverberant Room Method for Sound Testing of Fans

- 1.2.5 : Air-Conditioning and Refrigeration Institute (ARI)
 - 1.2.5.1 : ARI 575 – Method of Measuring Machinery Sound within Equipment Space

- 1.2.6 : American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRA)
 - 1.2.6.1 : ASHRA 68 – Laboratory Method of Testing In-Duct Sound Power Measurement Procedure for Fans
 - 1.2.6.2 ASHRA Handbook – HVAC Applications

1.3: Design Requirements

*Specifier Notes: The **GenieClip WATT** acoustic assembly is a proprietary product used for HVAC piping and equipment, plumbing piping and equipment, and electrical components while simultaneously isolating them from vibration. This significantly reduces the amount of impact and airborne sound filtering from rooms and equipment above, below, and alongside.*

*To maximize the noise control capacity and potential of the **GenieClip WATT**, a professional acoustical engineer should be consulted.*

*To maximize the acoustical performance of the **GenieClip WATT**, it is recommended the dead or shear load not exceed 200 pounds per hanger.*

- 1.3.1 : Dead or Shear Load: Maximum design load of 200 pounds per each hanger.
- 1.3.2 : Conform to UL Fire Resistance Directory design assemblies, where required.

1.4 : Submittals

- 1.4.1 : General: Submit listed submittals in accordance with Conditions of the Contract and Division 1 Submittal Procedures Section.
- 1.4.2 : Product Data: Submit product data, including manufacturer's guide specifications product sheet, for specified products.
 - 1.4.2.1 : **GenieClip WATT**
- 1.4.3 : Samples: Submit selection and verification samples for finishes, colors, and textures.
 - 1.4.3.1 : **GenieClip WATT**
- 1.4.4 : Shop Drawings: Manufacturer's specifications, catalog cuts, and other items needed to demonstrate compliance with the specified requirements. Also the manufacturer's recommended installation procedures, which, when approved by the architect, will become the basis for accepting or rejecting actual installation procedures used on work.
- 1.4.5 : Quality Assurance Submittals: Submit the following:
 - 1.4.5.1 : Certificates: If required, certification of performance characteristics specified in this document shall be provided by the manufacturer.

1.4.5.2 : Manufacturer's Instructions: Manufacturer's installation instructions.

1.4.6 : Closeout Submittals: Submit the following:

1.4.6.1 : Warranty: Warranty documents specified herein.

1.5 : Quality Assurance

1.5.1 : Qualifications

1.5.1.1 : Installer Qualifications: Installer experienced in performing work of this section who has specialized in installation of work similar to that required for this project.

1.5.1.1.1 : Certificate: When requested, submit certificate indicating qualification.

1.5.1.2 : Manufacturers' Qualifications: Manufacturer capable of approving application method.

1.5.2 : Regulatory Requirements: [specify applicable requirements of regulatory agencies].

1.5.3 : Mock-Ups: Install at project site a job mock-up using acceptable products and manufacturer-approved installation methods. Comply with workmanship standard. Comply with Division 1 Quality Control (Mock-Up Requirements) Section.

1.5.3.1 : Mock-Up Size: As determined by acoustical consultant.

1.5.3.2 : Maintenance: Maintain mock-up during construction for workmanship comparison; remove and legally dispose of mock-up when no longer required.

1.5.3.3 : Incorporation: Mock-up may be incorporated into final construction upon Owner's approval.

1.5.4 : Pre-installation Meetings: Conduct pre-installation meeting to verify project requirements, substrate conditions, manufacturer's instructions, and manufacturer's warranty requirements. Comply with Division 1 Project Management and Coordination (Project Meetings) Section.

1.5.5 : Pre-installation Testing: Conduct pre-installation testing as follows: [specify substrate testing; consult with flooring manufacturer].

1.6 : Delivery, Storage, and Handling

1.6.1 : General: Comply with Division 1 Product Requirements Sections.

1.6.2 : Ordering: Comply with manufacturer's ordering instructions and lead time requirements to avoid construction delays.

1.6.3 : Delivery: Deliver materials in manufacturer's original, unopened, and undamaged containers with identification labels intact.

- 1.6.4 : Storage and Protection: Store materials at temperature and humidity conditions recommended by manufacturer and protect from exposure to harmful weather conditions.

1.7 : Project Conditions

- 1.7.1 : Temperature Requirements: Maintain air temperature in spaces where products will be installed for time period before, during, and after installation as recommended by manufacturer.
- 1.7.2 : Field Measurements: Verify actual measurements/openings by field measurements before fabrication; show recorded measurements on shop drawings. Coordinate field measurements and fabrication schedule with construction progress to avoid construction delays.

1.8 : Warranty

- 1.8.1 : Project Warranty: Refer to Conditions of the Contract for project warranty provisions.
- 1.8.1.1 : The recommendations for applications and installation are based on our extensive experience and on current technological practice. Our liability and responsibility in the event of damages is limited to the extent defined in our General Terms and Conditions of Business and is not in any way increased by the above recommendations or by advice given by our sales representatives or applications engineering staff.
- 1.8.1.2 : **Pliteq Inc.** is a corporation duly organized and validly existing under the laws of the province of Ontario. **Pliteq** offers a limited lifetime warranty on the **GenieClip WATT** brand of hanger products against defects in material and workmanship and that **GenieClip WATT** shall meet all published specifications and shall perform effectively. **GenieClip WATT** warranties that during the warranty period. All other warranties including implied warranties for a purpose are expressly excluded. The sole remedy against the seller will be the replacement or repair of the defective goods, or at seller's option, credit may be issued not exceeding the selling price of the defective goods **GenieClip WATT**.
- 1.8.1.3 : To qualify for replacement or repair, a claim is required to be made directly to **Pliteq**. All claims are required to be made by telephone at 416-449-0049 or a written claim can be sent to the following address:

Pliteq Inc.
131 Royal Group Crescent
Vaughan, ON
L4H 1X9
Canada

- 1.8.1.4 : **Pliteq** must be notified within 14 days of the discovery of a defect and prior to installation. Any claims initiated outside of this limitation period are deemed invalid. A **Pliteq** claim form including customer requirements must be completed and submitted to **Pliteq** within 30 days of notification of defect. Once a claim process is initiated, a material inspection may be performed at **Pliteq's** discretion to ensure the situation is resolved in a comprehensively fair manner.

1.9 : Maintenance

1.9.1 : Extra Materials: Deliver to Owner extra materials from the same production run as products installed. Package products with protective covering and identify with descriptive labels. Comply with Division 1 Closeout Submittals (Maintenance Materials) Section.

1.9.1.1 : Quantity: Furnish quantity of molded rubber and steel resilient sound isolation clip units as requested on purchase order.

1.9.1.2 : Delivery, Storage and Protection: Comply with Owner's requirements for delivery, storage, and protection of extra materials.

Part 2.0 – Proprietary Manufacturer/Products

2.1 : Manufacturer: **Pliteq** Inc.

2.1.1 : Address: 131 Royal Group Crescent, Vaughan, ON L4H 1X9; Telephone: (416) 449-0049; Fax: (416) 849-0415; Email: info@pliteq.com

2.2: Proprietary Product(s)

2.2.1 : **GenieClip WATT** Resilient Vibration Isolation Hanger manufactured by **Pliteq**

Inc. 2.3: **GenieClip WATT** Resilient Vibration Isolation Hanger

2.3.1 : Product Name: The molded rubber and steel resilient sound vibration furnished under this specification shall be **GenieClip WATT** Vibration Isolation Hanger

2.3.2 : Rubber Isolator:

2.3.2.1 : Compressible elastomer, low durometer rubber compound.

2.3.2.2 : Unibody design.

2.3.2.3 : Manufactured to ASTM D2000, M2 AA 510 A13, which includes:

2.3.2.3.1 : Hardness, ASTM D2240, Shore A: 37

2.3.2.3.2 : Modulus 300 Percent, ASTM D412, Die C: 5.3 MPa

2.3.2.3.3 : Tensile Strength, ASTM D412, Die C: 11.2 MPa

2.3.2.3.4 : Elongation at Break, ASTM D573: 454 percent

2.3.2.4 : Laboratory tested to ASTM D5992, ASTM D4473, ASTM D4065 for the properties:

2.3.2.4.1 : Dynamic Stiffness: 11.3 N/mm

2.3.2.4.2 : Ratio of Dynamic to Static Stiffness: 1.19

2.3.2.4.3 : Force/Deflection: 8.95 N/mm

2.3.3 : Hanger: steel housing with two sides bent down, considerably increasing the rigidity of the steel housing itself.

2.3.4 : PATENT No.: Pending

2.3.5 : Projection: The hangers are shipped fully assembled and ready for installation in threaded rod suspension systems, height can be adjusted from structure per project specification.

2.3.6 : Specified product must support the following minimum structural requirements:

2.3.6.1 : An ultimate load before failure of 445 lbs in direct withdrawal with 25 Gauge channel, ASTM D1761

2.3.6.2 : An ultimate load before failure of 229 lbs in lateral resistance (shear), ASTM D1761

2.3.6.3 : Minimum **GenieClip WATT** Fastener Pullout and Shear: 108 lbs

2.3.7 : Specified product must have been tested in more than 100 assemblies to ASTM E90 and E492 in a NVLAP certified laboratory and comply with ASTM standards.

2.3.8 : Shall be UL listed.

*Specifier Notes: The following materials are not furnished by **Pliteq Inc.***

2.4 : Anchor Rods

2.4.1 : Type: Self-drilling, self-tapping rods. Steel, ASTM C1002. Galvanized coating, plated, or oil-phosphate coated, ASTM B633, as needed for required corrosion resistance.

2.5 : Tie Wire

2.5.1 : Type: 12 gauge, annealed, galvanized steel.

2.6 : Fire/Smoke Sealant

2.6.1 : Type: Flexible, non-hardening. Classified as an acoustical sealant. As specified in Section 07920.

2.7 : Putty Pad Sealant

2.7.1 : Type: Control noise transmission and fire resistance at electrical boxes and other penetrations. As specified in Section 07920.

2.8 : Product Substitutions

2.8.1 : Substitutions: No substitutions permitted

2.9 : Related Materials

2.9.1 : Related Materials: Refer to other sections listed in Related Sections paragraph for related materials

2.10 : Source Quality

2.10.1 : Source Quality: Obtain Reduced Sound Transmission materials from a single manufacturer

Part 3.0 – Execution

3.1 : Manufacturers' Instructions

- 3.1.1 : Compliance: Comply with manufacturer's product data, including product technical bulletins, product catalog installation instructions, and product carton instructions for installation.

3.2 : Examination

- 3.2.1 : Site Verification of Conditions: Verify substrate conditions, which have been previously installed under other sections, are acceptable for product installation in accordance with manufacturer's instructions.

3.3 : Installation – General

- 3.3.1 : Install **GenieClip WATT**, sealant, and drywall furring channels in accordance with manufacturer's instructions.

- 3.3.2 : Mechanically fasten **GenieClip WATT** to structure with anchor rods or tie wire, dependent upon structure.

- 3.3.3 : Fire-Resistive Design Assemblies:

- 3.3.3.1 : Install as specified in UL Fire Resistance Directory, where required.

- 3.3.4 : Space **GenieClip WATT** at maximum of 24 inches (600 mm) by 48 inches (1,200 mm) on center for ceilings.

- 3.3.5 : Do not exceed design load (pull and shear) of 100 pounds per hanger.

- 3.3.6 : Stagger **GenieClip WATT** installation, so dead load is supported by all support members.

- 3.3.7 : Splicing Drywall Furring Channels:

- 3.3.7.1 : Splice drywall furring channels with minimum of 6-inch (150-mm) laps.

- 3.3.7.2 : Secure laps with 2 framing screws or 18 gauge tie wire double

- 3.3.7.3 : Locate splices between **GenieClip WATT**.

- 3.3.7.4 : Do not locate splices on **GenieClip WATT**.

- 3.3.8 : Flanking Noise

- 3.3.8.1 : Review installation details to prevent structure-borne flanking noise.

- 3.3.8.2 : Do not allow drywall furring channels or gypsum board to contact foreign materials, including floors, ceilings, or wall framing members.

- 3.3.9 : Ensure rubber isolator of **GenieClip WATT** is in place with metal housing.

- 3.3.10:Gypsum Board:

- 3.3.10.1 : Install gypsum board in a horizontal position with 1/8-inch (3-mm) to 1/4- inch (6-mm) gap around perimeter for acoustical sealant application.

- 3.3.10.2 : Install gypsum board in accordance with ASTM C840 as specified in Section 09250

- 3.3.11 : Acoustical Sealant

- 3.3.11.1 : Seal potential air leaks with acoustical sealant to achieve best Field Sound Transmission Class (FSTC).
- 3.3.11.2 : Seal electrical outlets and penetrations with acoustical sealant.
- 3.3.11.3 : Apply fire-rated acoustical sealant at locations where fire-rated assembly is required.

3.3.12 : Putty Pad Sealant:

- 3.3.12.1 : Acoustically seal with putty pads, electrical boxes in walls and ceilings in which **GenieClip WATT** is used

3.3.13 : Cold-Rolled Channel:

- 3.3.13.1 : 1 1/2" x 1/2" 16-gauge cold-rolled channel to be suspended from hangers.

3.4 : Installation – Ceilings

*Specifier Notes: Special consideration should be given to all penetrations, such as recessed light fixtures, electrical boxes, exhaust fans, and sprinkler heads to ensure the control of both STC and IIC noise transfer. Consult **Pliteq Inc.** for additional information.*

3.4.1 : Install drywall furring channels perpendicular, parallel, or angular to framing members.

3.4.2 : Space Drywall Furring Channels:

3.4.2.1 : Maximum of 24 inches (600 mm) on center with:

- 3.4.2.1.1 : Single layer of 5/8-inch (16-mm) gypsum board
- 3.4.2.1.2 : Double layer of 5/8-inch (16-mm) gypsum board, weighing less than 2.25 pounds per square foot per layer
- 3.4.2.1.3 : Single layer of 1/2-inch (12-mm) high-strength gypsum board
- 3.4.2.1.4 : Double layer of 1/2-inch (12-mm) high-strength gypsum board

3.4.2.2 : Maximum of 16 inches (400 mm) on center with:

- 3.4.2.2.1 : Single layer of 5/8-inch (16-mm) gypsum board
- 3.4.2.2.2 : Double layer of 5/8-inch (16-mm) gypsum board
- 3.4.2.2.3 : Single layer of 1/2-inch (12-mm) regular-strength gypsum board
- 3.4.2.2.4 : Double layer of 1/2-inch (12-mm) regular-strength gypsum board

3.4.3 : Locate **GenieClip WATT** maximum of 6 inches (150 mm) from ends of drywall furring channels. 3.4.4 :

Locate drywall furring channels maximum of 3 inches (75 mm) from parallel wall assemblies.

3.5 : Field Quality Requirements:

- 3.5.1 : Manufacturer's Field Services: Upon Owner's request, provide manufacturer's field service consisting of product use recommendations in accordance with manufacturer's instructions.
- 3.5.2 : Field Tests should be performed by an independent acoustical laboratory accredited by the U.S. Department of Commerce, National Institute of Standards and Technology under the National Voluntary Laboratory Accreditation Program for the specified test procedure.

3.5.3 : The cost for all field acoustical testing, corrective work associated with the installation of the resilient vibration isolation hangers and ceilings to meet the minimum requirements, shall be borne by the contractor(s).

3.6 : Cleaning

3.6.1 : Remove temporary coverings and protection of adjacent work areas. Repair or replace damaged installed products. Clean installed products in accordance with manufacturer's instructions prior to Owner's acceptance. Remove construction debris from project site and legally dispose of debris.

3.7 : Protection

3.7.1 : Protection: Protect installed product and finish surfaces from damage during construction

3.8 : Schedules

3.8.1 : Schedules: [Specify reference to applicable schedules].

END OF SECTION