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File No: T-VISR-SD-001 Date: 6-Mar-2014

Supersedes: New Date: New

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2. REFERENCE PRODUCT DATA SHEETS FOR ADDITIONAL INFORMATION.

TANK

RESTRAINT BRACKET FASTENED TO TANK SKIRT.
V-A TYPE SRB

ANCHOR PER SEISMIC CALCULATION

ELEVATION VIEW

HOUSEKEEPING PAD TO BE DOWELED TO THE STRUCTURE AND SIZED TO ACCEPT SEISMIC ANCHORAGE

PLAN VIEW

120°
NOTES:
1. THESE OPTIONS MAY REQUIRE ADDITIONAL BRACING FOR SEISMIC FORCES ($F_p$) GREATER THAN 500 LBS.
2. ALL PRODUCT SIZES AND CAPACITIES TO BE DETERMINED AFTER EQUIPMENT IS APPROVED AND CALCULATIONS HAVE BEEN PERFORMED.
3. REFERENCE PRODUCT DATA SHEETS FOR ADDITIONAL INFORMATION.
ELEVATION VIEW

END VIEW

FLEXIBLE CONNECTOR AT ALL PIPING CONNECTIONS

ANCHOR PER SEISMIC CALCULATION

RESTRAINT BRACKET FASTENED TO AHU BASE.
V-A TYPE SRB WITH GROMMET WASHER

HOUSEKEEPING PAD TO BE DOWELED TO THE STRUCTURE AND Sized TO ACCEPT SEISMIC ANCHORAGE

NEOPRENE PAD. V-A TYPE NSN

NOTES:
1. ALL PRODUCT QUANTITIES, SIZES AND CAPACITIES TO BE DETERMINED AFTER EQUIPMENT IS APPROVED AND CALCULATIONS HAVE BEEN PERFORMED.
2. REFERENCE PRODUCT DATA SHEETS FOR ADDITIONAL INFORMATION.
NOTE:
1. ALL PRODUCT QUANTITIES, SIZES AND CAPACITIES TO BE DETERMINED AFTER EQUIPMENT IS APPROVED AND CALCULATIONS HAVE BEEN PERFORMED.
2. REFERENCE PRODUCT DATA SHEETS FOR ADDITIONAL INFORMATION.

VIBRATION & SEISMIC CONTROL - FLOOR MOUNTED CHILLER
OPTION #1 - NEOPRENE PAD ISOLATORS (GRADE)

CONCRETE INERTIA BASE
V-A TYPE CIB

OPEN SPRING ISOLATOR
V-A TYPE FS

NEOPRENE PAD.
V-A TYPE NSN

OPTION #2 - SPRING ISOLATORS (UPPER FLOORS)

DOUBLE SPHERE NEOPRENE FLEX CONNECTOR WITH CONTROL UNITS. V-A TYPE NNDCU

CONCRETE INERTIA BASE
V-A TYPE CIB

OPEN SPRING ISOLATOR
V-A TYPE FS

ANCHOR PUMP TO BASE

CONCRETE INERTIA BASE
V-A TYPE CIB

SEISMIC SPRING ISOLATOR
V-A TYPE SFS

HOUSEKEEPING PAD TO BE DOWELED TO THE STRUCTURE AND SIZED TO ACCEPT SEISMIC ANCHORAGE

OPTION #3 - SEISMIC SPRING ISOLATORS (UPPER FLOORS)

DOUBLE SPHERE NEOPRENE FLEX CONNECTOR WITH CONTROL UNITS. V-A TYPE NNDCU

ANCHOR AND RUBBER WASHER WHEN SEISMIC RESTRAINT IS REQ'D PER CALCULATION

NOTE:
1. ALL PRODUCT QUANTITIES, SIZES AND CAPACITIES TO BE DETERMINED AFTER EQUIPMENT IS APPROVED AND CALCULATIONS HAVE BEEN PERFORMED.
2. REFERENCE PRODUCT DATA SHEETS FOR ADDITIONAL INFORMATION.
**NOTES:**
1. ALL PRODUCT QUANTITIES, SIZES AND CAPACITIES TO BE DETERMINED AFTER EQUIPMENT IS APPROVED AND CALCULATIONS HAVE BEEN PERFORMED.
2. REFERENCE PRODUCT DATA SHEETS FOR ADDITIONAL INFORMATION.
ELEVATION VIEW

ANCHOR PER SEISMIC CALCULATION

RESTRAINT BRACKET FASTENED TO UNIT BASE. V-A TYPE SRB WITH GROMMET WASHER. NOTE: RESTRAINT BRACKETS MAY NOT BE REQUIRED IF FACTORY MOUNTING HOLES ARE AVAILABLE AND ARE ADEQUATE.

END VIEW

HOUSEKEEPING PAD TO BE DOWELED TO THE STRUCTURE AND SIZED TO ACCEPT SEISMIC ANCHORAGE

NOTES:

1. ALL PRODUCT QUANTITIES, SIZES AND CAPACITIES TO BE DETERMINED AFTER EQUIPMENT IS APPROVED AND CALCULATIONS HAVE BEEN PERFORMED.
2. REFERENCE PRODUCT DATA SHEETS FOR ADDITIONAL INFORMATION.
NOTES:
1. ALL PRODUCT QUANTITIES, SIZES AND CAPACITIES TO BE DETERMINED AFTER EQUIPMENT IS APPROVED AND CALCULATIONS HAVE BEEN PERFORMED.
2. REFERENCE PRODUCT DATA SHEETS FOR ADDITIONAL INFORMATION.
NOTES:
1. ALL PRODUCT QUANTITIES, SIZES AND CAPACITIES TO BE DETERMINED AFTER EQUIPMENT IS APPROVED AND CALCULATIONS HAVE BEEN PERFORMED.
2. REFERENCE PRODUCT DATA SHEETS FOR ADDITIONAL INFORMATION.
ANCHOR PER SEISMIC CALCULATION WITH RUBBER GROMMET
NEOPRENE PAD. V-A TYPE NSN
HOUSEKEEPING PAD TO BE DOWELED TO THE STRUCTURE AND SIZED TO ACCEPT SEISMIC/WIND ANCHORAGE

ELEVATION VIEW

FLEXIBLE CONNECTOR AT ALL PIPING CONNECTIONS

END VIEW

NOTES:
1. ALL PRODUCT QUANTITIES, SIZES AND CAPACITIES TO BE DETERMINED AFTER EQUIPMENT IS APPROVED AND CALCULATIONS HAVE BEEN PERFORMED.
2. REFERENCE PRODUCT DATA SHEETS FOR ADDITIONAL INFORMATION.
CONCRETE INERTIA BASE
V-A TYPE CIB
OPEN SPRING ISOLATOR
V-A TYPE FS

HOUSEKEEPING PAD TO BE DOWELED TO THE STRUCTURE AND SIZED TO ACCEPT SEISMIC ANCHORAGE

VIBRATION & SEISMIC CONTROL - AIR COMPRESSOR

OPTION #1 - NEOPRENE PAD ISOLATORS (GRADE)

ANCOR AND RUBBER WASHER WHEN SEISMIC RESTRAINT IS REQ'D PER CALCULATION
NEOPRENE PAD. V-A TYPE NSN
HOUSEKEEPING PAD TO BE DOWELED TO THE STRUCTURE AND SIZED TO ACCEPT SEISMIC ANCHORAGE

OPTION #2 - SPRING ISOLATORS (UPPER FLOORS)

CONCRETE INERTIA BASE V-A TYPE CIB
OPEN SPRING ISOLATOR V-A TYPE FS

OPTION #3 - SEISMIC SPRING ISOLATORS (UPPER FLOORS)

ANCHOR AND RUBBER WASHER WHEN SEISMIC RESTRAINT IS REQ'D PER CALCULATION
CONCRETE INERTIA BASE V-A TYPE CIB
SEISMIC SPRING ISOLATOR V-A TYPE SFS
HOUSEKEEPING PAD TO BE DOWELED TO THE STRUCTURE AND SIZED TO ACCEPT SEISMIC ANCHORAGE

NOTES:
1. ALL PRODUCT SIZES AND CAPACITIES TO BE DETERMINED AFTER EQUIPMENT IS APPROVED AND CALCULATIONS HAVE BEEN PERFORMED.
2. REFERENCE PRODUCT DATA SHEETS FOR ADDITIONAL INFORMATION.
3. ANY PIPING CONNECTIONS SHALL BE MADE WITH FLEXIBLE HOSES WITH SUFFICIENT CAPACITY FOR DIFFERENTIAL MOVEMENT.
OPTION #1 - NEOPRENE PAD ISOLATORS (GRADE)

- Anchor and rubber washer when seismic restraint is required per calculation
- Neoprene pad
- V-A Type NSN
- Housekeeping pad to be doweled to the structure and sized to accept seismic anchorage

OPTION #2 - SPRING ISOLATORS (UPPER FLOORS)

- Concrete inertia base
- V-A Type CIB
- Open spring isolator
- V-A Type F3

OPTION #3 - SEISMIC SPRING ISOLATORS (UPPER FLOORS)

- Concrete inertia base
- V-A Type CIB
- Seismic spring isolator
- V-A Type SFS
- Housekeeping pad to be doweled to the structure and sized to accept seismic anchorage

NOTES:
1. All product sizes and capacities to be determined after equipment is approved and calculations have been performed.
2. Reference product data sheets for additional information.
3. Any piping connections shall be made with flexible hoses with sufficient capacity for differential movement.
ELEVATION VIEW

ANCHOR AND RUBBER WASHER WHEN SEISMIC RESTRAINT IS REQ'D PER CALCULATION

NEOPRENE PAD. V-A TYPE NSN

HOUSEKEEPING PAD TO BE DOWELED TO THE STRUCTURE AND SIZED TO ACCEPT SEISMIC ANCHORAGE

END VIEW

NOTES:
1. ALL PRODUCT SIZES AND CAPACITIES TO BE DETERMINED AFTER EQUIPMENT IS APPROVED AND CALCULATIONS HAVE BEEN PERFORMED.
2. REFERENCE PRODUCT DATA SHEETS FOR ADDITIONAL INFORMATION.
3. ANY CONDUIT CONNECTIONS SHALL BE MADE WITH FLEXIBLE HOSES WITH SUFFICIENT CAPACITY FOR DIFFERENTIAL MOVEMENT.

VIBRATION & SEISMIC CONTROL - TRANSFORMER
OPTION #1 - NEOPRENE PAD ISOLATORS (GRADE)

OPTION #2 - SPRING ISOLATORS (UPPER FLOORS)

OPTION #3 - SEISMIC SPRING ISOLATORS (UPPER FLOORS)

NOTES:
1. ALL PRODUCT QUANTITIES, SIZES AND CAPACITIES TO BE DETERMINED AFTER EQUIPMENT IS APPROVED AND CALCULATIONS HAVE BEEN PERFORMED.
2. REFERENCE PRODUCT DATA SHEETS FOR ADDITIONAL INFORMATION.
ELEVATION VIEW

ANCHOR ISOLATOR TO CONCRETE PER SEISMIC/WIND CALCULATION

STEEL STRUCTURE TO BE SIZED TO ACCEPT SEISMIC/WIND LOADS AND ANCHORAGE. BY OTHERS.

ELEVATION VIEW

CONCRETE STRUCTURE

FLEXIBLE CONNECTOR AT ALL PIPING CONNECTIONS

FLEXED UNIT TO STEEL BASE PER SEISMIC/WIND CALCULATION

FULL PERIMETER STEEL BASE FOR SEISMIC/WIND LOADS. V-A TYPE SB

END VIEW

CONCRETE PIERS TO BE SIZED TO ACCEPT SEISMIC/WIND LOADS AND ANCHORAGE. BY OTHERS.

CONCRETE STRUCTURE

RESTRAINED SPRING ISOLATOR. V-A TYPE CSR/SCSR
BOLT OR WELD ISOLATOR TO STEEL PER SEISMIC/WIND CALCULATION

NOTES:
1. ALL PRODUCT QUANTITIES, SIZES AND CAPACITIES TO BE DETERMINED AFTER EQUIPMENT IS APPROVED AND CALCULATIONS HAVE BEEN PERFORMED.
2. REFERENCE PRODUCT DATA SHEETS FOR ADDITIONAL INFORMATION.
3. FLEX CONNECTIONS ARE REQUIRED ON ATTACHED PIPING. NOT SHOWN.
ATTACH UNIT TO CURB PER SEISMIC/WIND CALCULATION

ATTACH CURB TO STRUCTURE WITH CONCRETE ANCHOR PER SEISMIC/WIND CALCULATION

ROOFING

SEISMIC/WIND RATED SPRING ISOLATION CURB V-A TYPE VCR

VIBRATION & SEISMIC CONTROL - RTU WITH VCR

NOTES:
1. ALL PRODUCT SIZES AND CAPACITIES TO BE DETERMINED AFTER EQUIPMENT IS APPROVED AND CALCULATIONS HAVE BEEN PERFORMED.
2. REFERENCE PRODUCT DATA SHEETS FOR ADDITIONAL INFORMATION.
3. ANY PIPING/DUCT CONNECTIONS SHALL BE MADE WITH FLEXIBLE CONNECTIONS WITH SUFFICIENT CAPACITY FOR DIFFERENTIAL MOVEMENT.
NOTES:
1. ALL PRODUCT SIZES AND CAPACITIES TO BE DETERMINED AFTER EQUIPMENT IS APPROVED AND CALCULATIONS HAVE BEEN PERFORMED.
2. REFERENCE PRODUCT DATA SHEETS FOR ADDITIONAL INFORMATION.
3. ANY PIPING/DUCT CONNECTIONS SHALL BE MADE WITH FLEXIBLE CONNECTIONS WITH SUFFICIENT CAPACITY FOR DIFFERENTIAL MOVEMENT.

VIBRATION & SEISMIC CONTROL - ROOF MOUNTED FANS
NOTES:
1. ALL PRODUCT SIZES AND CAPACITIES TO BE DETERMINED AFTER EQUIPMENT IS APPROVED AND CALCULATIONS HAVE BEEN PERFORMED.
2. REFERENCE PRODUCT DATA SHEETS FOR ADDITIONAL INFORMATION.
3. ANY PIPING CONNECTIONS SHALL BE MADE WITH FLEXIBLE CONNECTORS.
4. UNIT MANUFACTURER TO DETERMINE IF THE UNIT IS CAPABLE OF BEING POINT LOADED BY ISOLATORS. OTHERWISE A STEEL BASE MAY BE REQUIRED BETWEEN THE UNIT AND THE ISOLATORS.
NOTES:
1. ALL PRODUCT SIZES AND CAPACITIES TO BE DETERMINED AFTER EQUIPMENT IS APPROVED AND CALCULATIONS HAVE BEEN PERFORMED.
2. REFERENCE PRODUCT DATA SHEETS FOR ADDITIONAL INFORMATION.
3. ANY PIPING CONNECTIONS SHALL BE MADE WITH FLEXIBLE CONNECTORS.
PLAN VIEW

ELEVATION VIEW

NOTES:
1. ALL PRODUCT SIZES AND CAPACITIES TO BE DETERMINED AFTER EQUIPMENT IS APPROVED AND CALCULATIONS HAVE BEEN PERFORMED.
2. REFERENCE PRODUCT DATA SHEETS FOR ADDITIONAL INFORMATION.
NOTES:
1. ALL PRODUCT SIZES AND CAPACITIES TO BE DETERMINED AFTER EQUIPMENT IS APPROVED AND CALCULATIONS HAVE BEEN PERFORMED.
2. REFERENCE PRODUCT DATA SHEETS FOR ADDITIONAL INFORMATION.
NOTES:
1. ALL PRODUCT SIZES AND CAPACITIES TO BE DETERMINED AFTER EQUIPMENT IS APPROVED AND CALCULATIONS HAVE BEEN PERFORMED.
2. REFERENCE PRODUCT DATA SHEETS FOR ADDITIONAL INFORMATION.
PLAN VIEW

ANCHOR TO ABOVE STRUCTURE PER SRK-AL

ELEVATION VIEW

CABLE RESTRAINT TYPE SRK/BB

ROD STIFFENER PER RS-1

ATTACH CABLE RESTRAINT TO PIPE FLANGE OR PIPE CLAMP

OPTIONAL CABLE POSITIONS. CABLES MUST BE INSTALLED IN OPPOSING DIRECTIONS

PLAN VIEW

90° (+/- 15°)

NOTES:
1. ALL PRODUCT SIZES AND CAPACITIES TO BE DETERMINED AFTER EQUIPMENT IS APPROVED AND CALCULATIONS HAVE BEEN PERFORMED.
2. REFERENCE PRODUCT DATA SHEETS FOR ADDITIONAL INFORMATION.
ELEVATION VIEW

PLAN VIEW

NOTES:
1. ALL PRODUCT SIZES AND CAPACITIES TO BE DETERMINED AFTER EQUIPMENT IS APPROVED AND CALCULATIONS HAVE BEEN PERFORMED.
2. REFERENCE PRODUCT DATA SHEETS FOR ADDITIONAL INFORMATION.
3. ANY PIPING CONNECTIONS SHALL BE MADE WITH FLEXIBLE HOSES WITH SUFFICIENT CAPACITY FOR DIFFERENTIAL MOVEMENT.
ANCHOR TO ABOVE STRUCTURE PER SRK-AL

CABLE RESTRAINT TYPE SRK/BB

ROD STIFFENER PER RS-1

ISOLATOR WITH STOPWASHER WHEN REQUIRED

PLAN VIEW (2 ROD ATTACHMENT)

OPTIONAL CABLE POSITIONS. CABLES MUST BE INSTALLED IN OPPOSING DIRECTIONS

90° (+/- 15°)

PLAN VIEW (4 ROD ATTACHMENT)

OPTIONAL CABLE POSITIONS. CABLES MUST BE INSTALLED IN OPPOSING DIRECTIONS

90° (+/- 15°)

NOTES:
1. ALL PRODUCT SIZES AND CAPACITIES TO BE DETERMINED AFTER EQUIPMENT IS APPROVED AND CALCULATIONS HAVE BEEN PERFORMED.
2. REFERENCE PRODUCT DATA SHEETS FOR ADDITIONAL INFORMATION.
3. ANY PIPING CONNECTIONS SHALL BE MADE WITH FLEXIBLE HOSES WITH SUFFICIENT CAPACITY FOR DIFFERENTIAL MOVEMENT.

SEISMIC BRACING - SUSPENDED UNIT HEATER

VIBROACOUSTICS®
A Swagon Group company

4/29/2014
VISR-ES-106
OPTIONAL CABLE POSITIONS. CABLES MUST BE INSTALLED IN OPPOSING DIRECTIONS

CABLE RESTRAINT TYPE SRK/BB

35° - 60°

PLAN VIEW

FASTEN UNIT TO WALL PER MANUFACTURER’S INSTRUCTIONS

35° - 60°

ROD STIFFENER PER RS-1

SIDE VIEW

NOTES:
1. ALL PRODUCT SIZES AND CAPACITIES TO BE DETERMINED AFTER EQUIPMENT IS APPROVED AND CALCULATIONS HAVE BEEN PERFORMED.
2. REFERENCE PRODUCT DATA SHEETS FOR ADDITIONAL INFORMATION.
ANCHOR STRUT TO WALL PER SEISMIC CALCULATION

ANCHOR UNIT TO STRUT WITH A307 BOLT OR EQUAL. INSTALL ISOLATION GROMMET WASHER WHEN REQUIRED BY SPECIFICATION.

ELEVATION VIEW
SIDE VIEW

PANEL BOARD (SMALL) - WALL MOUNTED

PANEL BOARD (LARGE) - WALL MOUNTED

NOTES:
1. ALL PRODUCT QUANTITIES, SIZES AND CAPACITIES TO BE DETERMINED AFTER EQUIPMENT IS APPROVED AND CALCULATIONS HAVE BEEN PERFORMED.
2. REFERENCE PRODUCT DATA SHEETS FOR ADDITIONAL INFORMATION.
NOTES:
1. ALL PRODUCT SIZES AND CAPACITIES TO BE DETERMINED AFTER EQUIPMENT IS APPROVED AND CALCULATIONS HAVE BEEN PERFORMED.
2. REFERENCE PRODUCT DATA SHEETS FOR ADDITIONAL INFORMATION.
NOTES:
1. REFERENCE SUBMITTAL DRAWINGS FOR RISER MOVEMENT CALCULATIONS, DIAGRAMS AND ISOLATOR LOCATIONS.
2. REFERENCE ISOLATOR DATA SHEETS FOR ADDITIONAL INFORMATION.

PIPE RISER SUPPORT DETAIL - SPRING ISOLATORS

PIPE RISER SUPPORT DETAIL - SPRING ISOLATORS

PIPE RISER W/ FS TYPE ISOLATORS
SUPPORT DETAIL

PIPE RISER W/ FST TYPE ISOLATORS
SUPPORT DETAIL
PIPE RISER WITH PAD TYPE ISOLATORS
SUPPORT DETAIL

NOTES:
1. REFERENCE SUBMITTAL DRAWINGS FOR RISER MOVEMENT CALCULATIONS, DIAGRAMS AND ISOLATOR LOCATIONS.
2. REFERENCE ISOLATOR DATA SHEETS FOR ADDITIONAL INFORMATION.

RISER CLAMP
WELDED TO
ISOLATOR
(BY OTHERS)

PAD ISOLATOR TYPE NSNS
SEE DATA SHEETS FOR
MORE INFORMATION

SUPPORT STEEL

INSULATION

CONCRETE SLAB

PIPE RISER
NOTES:
1. REFERENCE SUBMITTAL DRAWINGS FOR RISER MOVEMENT CALCULATIONS, DIAGRAMS AND ISOLATOR LOCATIONS.
2. REFERENCE ISOLATOR DATA SHEETS FOR ADDITIONAL INFORMATION.
OPTION #1 - SINGLE PIPE

NOTES:
1. REFERENCE SEISMIC CALCULATIONS FOR ANCHOR BOLT REQUIREMENTS.
2. REFERENCE PRODUCT DATA SHEETS FOR ADDITIONAL INFORMATION.
NOTES:
1. REFERENCE SEISMIC CALCULATIONS FOR ANCHOR BOLT REQUIREMENTS.
2. REFERENCE PRODUCT DATA SHEETS FOR ADDITIONAL INFORMATION.
Rigid restraint systems shall only be used for piping that are not supported by vibration isolators and/or not thermally active.

Longitudinal restraint spacing for ductile (e.g. steel) piping restrained longitudinally and the transverse restraints if they are within 24 in. (610 mm) of the centerline of the piping shall not exceed a maximum interval of 40 ft (12.2 m). The distance between the last restraint and the end of the pipe shall not exceed 40 ft (12.2 m). Longitudinal restraint spacing for non-ductile or brittle (e.g. cast iron) piping, all spacing criteria shall be divided by a minimum of two.

Transverse restraint spacing for ductile (e.g. steel) piping shall not exceed a maximum interval of 80 ft (24.4 m) on center. The distance between the last restraint and the end of the pipe shall not exceed 80 ft (24.4 m). Transverse restraint spacing for non-ductile or brittle (e.g. cast iron) piping, all spacing criteria shall be divided by a minimum of two.

Transportation Code (IBC). Piping shall be restrained to resist seismic loads (Fp) as proven by calculation to withstand such loads. For all projects is located.

Restraint sizes and their attachments shall be designed by the professional engineer licensed in the state in which the project is located.

Building Code (IBC) in all directions and vertical seismic loads (Fpv). All seismic loads shall be transferred by the restraints from the piping to the building structure. The appliance component of the weakest component of the restraint with safety margin criteria shall be divided by a minimum of two.
Seismic Restraints - Duct

Criteria:
Seismic restraints shall be installed for all duct in accordance with the current edition of the International Building Code (IBC). Ductwork shall be restrained to resist horizontal seismic loads (Fp) in all directions and vertical seismic loads (Fpv). All seismic loads shall be transferred by the restraints from the ductwork to the building structure.

Restraint sizes and their attachments shall be designed and installed to resist site specific seismic loads (Fp) as determined by the IBC. Restraint strengths shall be proven by calculation to withstand such loads. For all restraints, the maximum allowable load shall be based on the weakest component of the restraint with safety factors. Restraint calculations shall be stamped by a professional engineer licensed in the state in which the project is located.

Transverse restraint spacing for duct shall not exceed a maximum interval of 30 ft on center.

Longitudinal restraint spacing for duct shall not exceed a maximum interval of 60 ft on center.

Anchor Bolt to Structure

Hanger Rod

Stiffener Clamp Where Req’d

V-A Type VAC

Seismic Restraint Cable Kit

V-A Type SRK/BB

Note: An additional cable kit shall be installed in the opposing direction on duct run to be effective.
VIBRATION ISOLATION & SEISMIC/WIND RESTRAINT SUBMITTAL

Project:  
Project No.:  

Date:

Disclaimers, Assumptions and Directive Statements:

1. Seismic and/or wind calculations will be provided for non-structural components as per Vibro-Acoustics’ scope of work and provided in accordance with the specified edition of applicable building codes (e.g., International Building Code with local amendments). In cases where the required seismic and wind factors are not provided, the currently adopted code used in the region will be used and factors will be assumed as applicable to the region.

2. Equipment weights and dimensions used in Vibro-Acoustics’ work will be taken from approved submittals provided by the contractor to Vibro-Acoustics. The contractor shall communicate any deviations or changes to Vibro-Acoustics for review; significant changes to equipment after time of release may result in additional fees.

3. All restraint attachments to building structure will be defined by Vibro-Acoustics. Where information is not provided to Vibro-Acoustics as to the type of building material at the point of attachment, Vibro-Acoustics will make a reasonable assumption. Additional work to change from these assumptions due to lack of provided information at time of release may be considered additional scope of services and may result in additional fees. It is the responsibility of the contractor to communicate seismic loads determined by Vibro-Acoustics to the project’s structural engineer of record.

4. Unless included in Vibro-Acoustics’ scope of work, housekeeping pads will be assumed to be adequately dowelled to the supporting structure and reinforced to withstand seismic loads.

5. Unless included in Vibro-Acoustics’ scope of work, all suspended equipment and all floor-mounted equipment installed on vibration isolators will be assumed to be flexibly connected to associated conduit, piping and/or ductwork to prevent failure or damage from seismic loads on the equipment.

6. The contractor shall install all concrete anchor bolts to the manufacturers’ recommended torque. Vibro-Acoustics will assume that the concrete depth and edge distances shall be sufficient for proper installation as noted in the appropriate calculations. The contractor must review the work and if anchorage requirements cannot be satisfied, the contractor shall inform Vibro-Acoustics for review and rework as appropriate. The installing contractor shall comply with all special inspection requirements.

7. All equipment and components supplied by others, including ductwork or piping, concrete housekeeping pads, customized support structures and building structure components are not certified by Vibro-Acoustics’ analyses as capable to withstand the applied seismic loads. Mounting supports, brackets, or other means of attachment not provided by Vibro-Acoustics must be certified by others. Unless otherwise noted, calculations provided by Vibro-Acoustics apply only to components provided by Vibro-Acoustics such as seismic spring isolators, brackets and restraints and their attachments to structure.

8. Vibro-Acoustics assumes the following as part of standard building design criteria:
   - Steel structure provided by others between the equipment and isolators is determined by others and is considered sufficiently rigid to transfer seismic loads.
   - The building support structure will have at least ten times the stiffness of the specified isolators.
   - The building support structure natural frequency will be at least three times the natural frequency of the specified isolators.

9. Vibro-Acoustics will consider worst-case loading scenarios for seismic/wind calculations for groups of identical or similar pieces of equipment.

10. All drawings included in Vibro-Acoustics submittals are not to scale unless otherwise noted.