Recommended Specifications for

Stravifloor Channel



Section 13 48 00 Sound Control

This document is for specification writers' reference in the drafting process. CDM Stravitec will not be held responsible for the use or unauthorized modification of any information contained herein.

Specification notes are identified in the document as follows “**SPEC NOTE**” – these notes must be removed from final documents. Where multiple options may be available, these are identified in the corresponding spec note.

Text highlighted in yellow indicates text that should be coordinated with the entire spec book or represents sections that are options not found on every installation.

This document specification has been specifically written for the Stravifloor Channel system. Below is a schematic indication of the construction process from start to end as described in this specification.

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PART 1 GENERAL

* 1. SUMMARY

1. Furnish and install all materials, labor, tools, appliances, and equipment and perform all operations necessary for installation of the isolated floating floor system, Stravifloor Channel, as shown on the contract drawings and/or as described in the contract documents.
   1. Related SECTIONS

Shall include but not be limited to:

1. Concrete and reinforcing: Section 033000
2. Subflooring: Section 061623

***SPEC NOTE:***

1. *Stravifloor Channel systems require a flat and level structural floor to be specified.* *(Note to Specifier: FF 25 as minimum – meaning a single ¼’’ (6 mm) defect across 10-feet (3 m)).*
2. *Caulking: This is to be coordinated with the appropriate specification or specified herein. Care should be taken to identify the proper acoustical caulking if it is in a separate specification section.*
3. Caulking:  Section 079200
   1. SYSTEM DESCRIPTION

 The isolated floating floor system shall be designed, supplied, and installed as detailed in the contract drawings, and include the following components:

1. Channel Supports Minimum 24-gauge galvanized Steel Channels to distribute loads between pads and provide support for Formwork Panels. Channel profile, dimensions and section properties shall be selected based on the loading conditions and isolator spacing and dimensions.

***SPEC NOTE:***

*Choose one of the following options in terms of bearing type, according to design criteria.*

1. Elastomeric bearings: natural rubber isolation pads, 2’’ (50 mm) [or 1-3/16’’ (30 mm)], capable of achieving a resonant frequency as low as 6 Hz [or 10 Hz].

The bearings must have a creep rate < 1.5% (dec./min.) at maximum static load.

The bearings must be color-coded for easy identification of the type of support (by load capacity) and available from 14.5 to 440 psi (0.1 to 3 MPa) as load-bearing capacity per pad.

[OR]

***SPEC NOTE:***

*Custom springs can be provided but affecting the channel support design.*

B. Steel Springs: steel springs isolators, capable of achieving a resonance frequency as low as 4.5 or 4Hz at ADL, with a total thickness (before deflection) of 2-9/16’’ (65 mm) and 3-9/16’’ (90 mm), including elastomeric top and bottom plates, respectively.

***SPEC NOTE:***

*OPTIONAL ITEM: Sleepers or Shims may be installed over isolators to increase airspace.*

[IF REQUIRED] Over-heights or Shims: rigid materials such as concrete blocks, metal or wood sleepers at thickness required by acoustician to achieve and maintain adequate airspace or flatness in system as necessary. In the event that the materials in the air cavity may be exposed to moisture or water, suitable materials should be chosen.

Shims should be, at least, 1" (25 mm) bigger than the pad, in both directions. No limits are imposed in terms of maximum height, but connection between shims and isolators should be considered to make the overall system stable if too tall.

Over-heights or shims can be installed on bottom or top of pads.

In the event shims are placed on top of the bearings, must be continuous, beam-like, with mechanical fastening between it and the channel that supports the bearings.

1. Formwork:

Formwork should be designed to achieve a deflection criterion of L/240 based on dead load and live load during the construction phase when concrete is being poured and isolator spacing requirements unless noted otherwise.

***SPEC NOTE:***

*Typical thickness and type of formwork boards, considering 4’’ (100 mm) of concrete poured without motorized carts:*

*Deflection criteria L/240:*

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*The bearing spacing will directly affect the performance of the overall system.*

*Deflection criteria:*

* *due to uniform loads, loading parallel to supports and considering normal weight concrete.*
* *following ACI committee 347 recommendations (formwork designed for a minimum LL of 2.4 kN/m² (50 psf) to provide for weight of workmen, runways, screeds and other equipment and minimum design load for combined dead and live loads not less than 4.8 kN/m² (100.25 psf)).*
* *Following ACI 318-14 (table 24.2.2 - maximum permissible calculated deflections,* [*http://aghababaie.usc.ac.ir/files/1506505203365.pdf*](http://aghababaie.usc.ac.ir/files/1506505203365.pdf)*), which references L/240 for roofs and floors supported or attached to non-structural elements, not likely to be damaged by large deflections.*

*Valid for multi-span systems (panel across three or more supports), normal duration of load an panels 24 inches (610 mm) or wider, following APA’s Panel Design Specification.*

*Deflection criteria related with other punctual loads to be checked by SEOR formwork/floating floor design.*

*Same type of table for other concrete thickness and/or slabs when motorized carts are used (minimum LL of 3.6 kN/m² (75.2 psf) and minimum design load for combined dead and live loads should not be less than 6.0 kN/m² (125.3 psf)), available upon request.*

1. Construction Grade Polyethylene Sheeting: Construction grade polyethylene sheeting with a nominal thickness greater or equal to 6 mils.
2. Stravifloor Perimeter Isolation Element and Penetration Interface: 1’’ (25 mm) perimeter isolation board with an apparent density of 6 lbs/cu-ft (100 kg/m3). *[OPTION] Perimeter Isolation Board shall be Formaldehyde-Free.*

***SPEC NOTE:***

*CDM Stravitec recommends one of two potential Perimeter Board:*

*1. Standard Item: Johns Manville Whispertone Wallboard - fine, rotary-process, borosilicate glass fibers bonded with a special thermosetting resin to produce a structurally rigid board-type insulation.*

*2. Formaldehyde-Free Item: Knauf Acoustical Smooth Board with ECOSE® Technology - inorganic glass fibers preformed into boards with ECOSE Technology. W/ UL Environment: GREENGUARD Certified, GREENGUARD Gold Certified, Validated to be Formaldehyde-Free and EUCEB Certified*

*Alternatively, use of a 3/8’’ (10 mm) resilient perimeter isolation strip with a minimum density of 20 lbs/cu-ft (320 kg/m3) in areas where seismic loading is considered*

1. Stravifloor Acoustical Batt Insulation: Provide for acoustical batt insulation with the following specifications:
   * + 1. Nominal Thickness: 3/4’’ (20 mm) | 1” (25 mm) | 1.5” (38 mm) | 2” (50 mm) | 3” (75 mm)
       2. Apparent Density: greater than 2 lbs/cu-ft (32 kg/m3).
       3. [OPTION] Acoustical Batt Insulation shall be Formaldehyde-Free.

***SPEC NOTE:***

*As a reference the thickness of the Acoustical Batt Insulation should be at least 75% of the cavity depth. So, for a 50 mm (2’’) air cavity a 37.5 mm (1-1/2’’) Acoustical Batt Insulation is recommended.*

*CDM Stravitec recommends one of two potential Acoustical Batt Insulation:*

*1. Standard Item: Rockwool Acoustical Fire Batt (AFB) - lightweight, acoustical fire batt stone wool insulation specifically designed for steel stud and wood stud interior wall and floor applications – OR EQUIVALENT. This will depend on supply chain at time of project delivery.*

*2. Formaldehyde-Free Item: Knauf KN Series with ECOSE® Technology - flexible to semi-rigid blankets made from inorganic glass fibers bonded with ECOSE Technology. W/ UL Environment: GREENGUARD Certified, GREENGUARD Gold Certified, Validated to be Formaldehyde-Free and EUCEB Certified*

***SPEC NOTE:***

*Load bearing lateral isolation restraints, as well as for projects in seismic zones which require edge restraint.*

*The restrain system itself can be composed of systems like concrete curbs or steel angles (not limited to these examples) and its design and implementation is not included in this section.*

[IF REQUIRED] Acoustic Lateral Load Bearing Isolator Pads: In order to isolate the Acoustical Floating Floor from horizontal movements due to large horizontal forces (e.g. seismic loads), Acoustic Lateral Load Bearing Isolator Pads shall be installed at the perimeter of the Acoustical Floating Floor. The Isolator Pad shall be designed to transfer the lateral forces without compromising the resonance frequency of the Acoustical Floating Floor.

***SPEC NOTE:***

*CDM Stravitec recommends the use of Tremco Acoustical Sealant or equivalent.*

1. Stravifloor FAB: Provide acoustical load bearing isolation restrains as required per project documents and/or drawings.

***SPEC NOTE:***

*Provide information for caulking if required*

1. Caulking: Perimeter of Acoustical Isolated Floating Slab to be caulked with non-hardening acoustical seal.

***SPEC NOTE:***

*Minimum 3000 psi (20 MPa), standard weight concrete. The slab should be properly reinforced and cured per structural design, respecting the code minimums specified and SEOR floating floor design.*

1. Concrete for Isolated Floating Floor System: Provide normal weight concrete *(UNO by design team)* with a minimum compressive strength of 3000 psi (20 MPa) at 28 days. Slab should be properly reinforced to sustain self-weight loads, imposed and live loads. The slab should be properly reinforced and cured per structural design, respecting the code minimums specified and SEOR floating floor design.
   1. SUBMITTALS
2. Shop Drawings: Submit shop drawings showing layout, profiles, product components, product data, and relevant performance information, including but not limited to:
   1. Detailed product drawings, including isolator size and locations.
   2. Identification of all loads for the project – Dead Loads (DL), Superimposed Dead Loads (SiDL), Live Loads (LL).
   3. Calculation of static (deflection) and dynamic (resonance frequency) performance of all isolators under the following scenarios:
      1. Construction Phase (CP) Load,
      2. Dead Load only (DL),
      3. Acoustic Design Load (ADL) – Dead Load plus Live Load with a coefficient of 25%, and
      4. Serviceability Limit State (SLS) - Dead Load plus Live Load.
   4. Penetrations and drain details.
   5. Perimeter condition details.
3. Acoustical test data from an independent laboratory showing a minimum STC of 67 and IIC of 70 using a 4” (100 mm) Isolated Floating Floor System, on a 6” (150 mm) structural floor, with a 2” (50 mm) air gap.

***SPEC NOTE:***

*Item above relative to Acoustical test data references a requirement for “tests conducted within the last 10 years”. It should be noted that this is different from the test report as it is common practice for laboratories to re-issue reports with new test report dates for testing that occurred outside of a 10-year test date.*

***Stravi-dB:***

*CDM Stravitec provides various acoustic tests for different floor setups on* [*www.stravi-dB.com*](http://www.stravi-dB.com)*. In addition to the test reports, editable .csv files with data and typical cross-sections are also available.*

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* 1. QUALITY ASSURANCE

 The Stravifloor Channel system shall be installed by an experienced installer specialized in the installation of similar work to that of this project, either under direction from or by authorization of CDM Stravitec.

1. The Stravifloor Channel manufacturer shall have a minimum of 10 similar projects within the past 5 years and be capable of providing field service representation during installation.
2. Stravifloor Acoustical Batt Insulation shall be resistant to oil. Water, acids and fungus. Isolators should be capable of sustaining a 100% overload without damage, permanent set, collapse, or permanent loss in specified natural frequency. Isolators shall perform properly for the life of the installation.
3. The system shall be designed and fabricated by CDM Stravitec and subjected to CDM Stravitec Quality Assurance program.
   1. DELIVERY, STORAGE, AND HANDLING
4. Ordering: Comply with the manufacturer's ordering process and lead time requirements to avoid project delays.
5. Delivery: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.
6. Storage and Protection: Materials shall be stored in a conditioned space recommended by the manufacturer and protected from external weather conditions.
   1. PROJECT CONDITIONS
      1. If site conditions are unsatisfactory or raise questions about the installation and/or performance of the floating floor, the work shall not proceed until the condition has been corrected in a manner acceptable to meet the Isolated Floating Floor System Manufacturer’s guidelines.
   2. WARRANTY
7. Manufacturer’s Warranty: Submit, for the owner’s acceptance, the manufacturer’s standard warranty document executed by an authorized company official. The manufacturer’s warranty is in addition to and not a limitation of other rights the Owner may have under Contract Documents.

PART 2 PRODUCTS

2.01 MATERIALS

1. Manufacturer:

CDM Stravitec, Inc.

Address: 342 N. Queen St., Warehouse D, Lancaster, PA 17603

Phone: 888-454-6236

Email: [info-us@cdm-stravitec.com](mailto:info-us@cdm-stravitec.com)

Web: [www.cdm-stravitec.com](http://www.cdm-stravitec.com)

1. Products:
   1. Stravifloor Channel and associated accessories as described in Part 1 of this Section.

2.02 SUBSTITUTION OF MATERIALS

***SPEC NOTE:***

*Choose one of the following statements as desired by the design team.*

1. Substitute materials shall meet or exceed the “quality and performance” of the products which are listed in these Specifications. Submit samples and test reports by an independent laboratory for consideration on this project.

[OR]

A. No substitutions are permitted.

PART 3 EXECUTION3.01 INSTALLATION

 The installation of the Isolated Floating Floor System specified herein shall be in accordance with procedures submitted by the System manufacturer and approved by the Design Team (architect, structural and acoustical).

1. The base structural slab receiving the Isolated Floating Floor System shall be flat, smooth structural surface, cleared of debris and broom swept; any required waterproofing properly installed. The flatness of the supporting floor should be a maximum of 1/4” (6 mm) over 10-feet (3 m) – FF 25 (according to ASTM E1155-14 and American concrete Institute publication ACI 302) - to ensure a successful installation.

If the supporting floor is not completely flat and level then use a fast-drying, self-levelling compound across the whole floor to achieve required flatness criteria.

1. All walls, columns, and service penetrations through the floating floor should be isolated using strips of perimeter isolation or similar material as required to meet the geometry on site. The height of this isolation should be at a minimum equal to the thickness of the Isolated Floating Floor System.

Do not use any fasteners through the perimeter isolation boards.

1. Isolated channels must be installed per the shop drawings. Isolated channels are to be installed loose laid without the use of mechanical fixings or adhesive. If more than one type of channel (different in type or number of bearings) is being used, carefully check the layout of each isolated channel type correlates with the drawings – this can be done by matching the color and number of the pad to the color and number indicated on the drawing.
2. Absorption layer should be installed between channels (neve under the channels), being loose laid without mechanical or adhesive fixing.
3. Loose lay the lost formwork perpendicular to the steel channels and mechanically fix the boards to the steel channels using a screw that is short enough to not make contact with the supporting floor underneath. Take care to ensure that all board joints are located at the centre of a steel channel so that the joint is supported.
4. Prior to concrete pouring phase, a protective layer of construction grade polyethylene sheeting shall be installed over the whole floor and continued up the wall to cover the perimeter isolation strip.
   1. The protection layer shall consist of one layer of polyethylene sheeting overlapped and taped at all seams and at all connections where the vertical edge of the isolated slab contacts the building.
   2. All overlaps should be a minimum of 4’’ (100 mm) and then sealed using a 2’’ (50 mm) (minimum) wide construction grade self-adhesive tape.
   3. Ensure the protection layer is fitted neatly into the corner areas of the floor to avoid any pocketing which could result in a reduction of slab thickness in these areas.
5. Install reinforcing bars as required and identified by structural engineer. Reinforcement bars shall be assembled to the isolator assemblies in accordance with instructions from the structural engineer. If during installation of reinforcement bars any accidental tears occur in the polyethylene sheeting, they must be repaired using additional polyethylene sections and/or construction-grade self-adhesive tape depending on tear size.
6. After installation of the isolation materials, the concrete shall be poured and allowed to cure.
7. Trim any excess perimeter isolation material to the finished floor height and seal around the perimeter with a suitable elastic caulk. Clean any concrete that may have bridged over the perimeter isolation board.
8. All sound isolation materials and building components supported by isolation materials are to be completely free from rigid contact with any part of the building structure.
   1. PROTECTION
      1. Foot traffic during installation shall be kept to a minimum.
      2. Products shall be protected from damage during construction.
      3. Any vented or open perimeters shall remain free and clear of debris.
      4. The operation of heavy equipment and machinery on the floating floor shall be verified with the manufacturer before use.

END OF SECTION