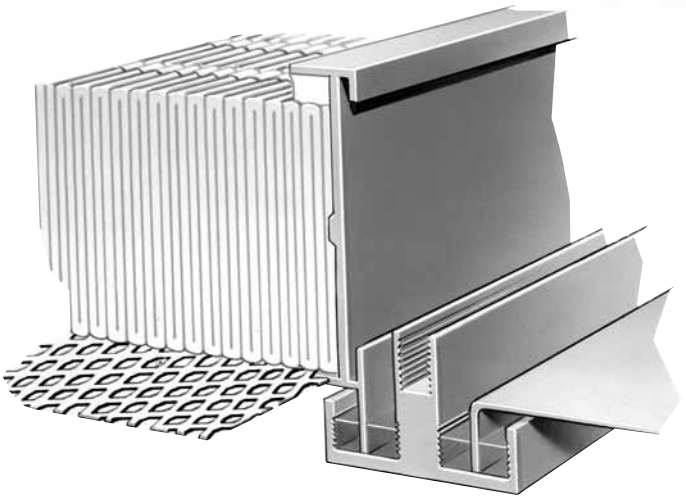
AAF INTERNATIONAL *Better Air is Our Business®*

AmericanAirFilter®
AstroGel™ III

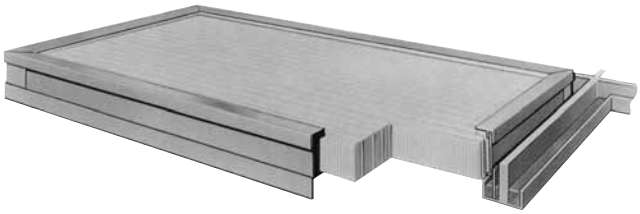
Gel Seal Ceiling Grid for Cleanrooms



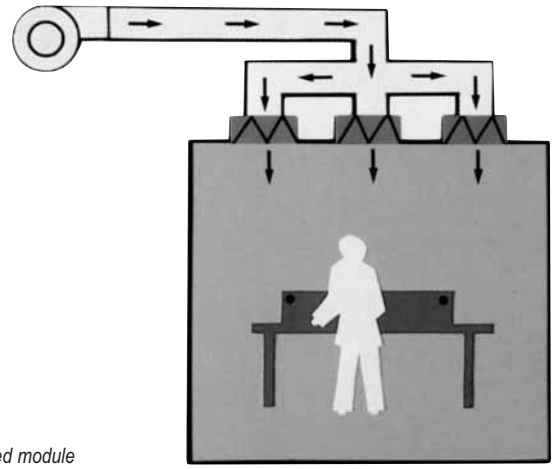
AstroGel™ III Gel Seal — Optimum flexibility and protection against leaks — all in one grid system

- ***Simplified installation***
- ***Compatible with either ducted or open plenum designs***
- ***Tight seals***
- ***Factory Mutual approval***

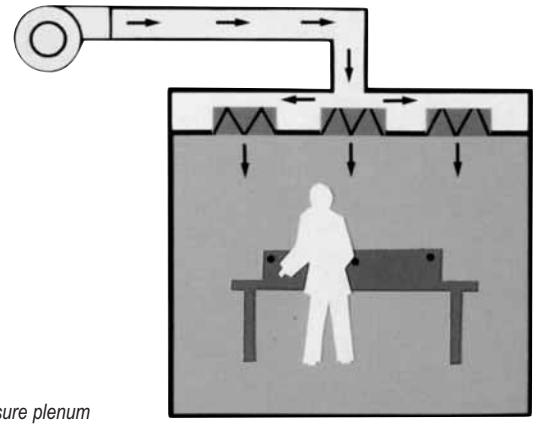
The AstroGel III Gel Seal Grid System was developed specifically for cleanroom applications in the microelectronics, aerospace, and pharmaceutical industries. The flush-bottom grid system can be used with AAF Knife Edge HEPA, ULPA, and MEGA filters, either in a pressurized plenum, or with individual ducted modules.The AstroGel III grid has been successfully installed in cleanrooms worldwide.



AstroCel II HEPA filter with knife edge



Ducted module

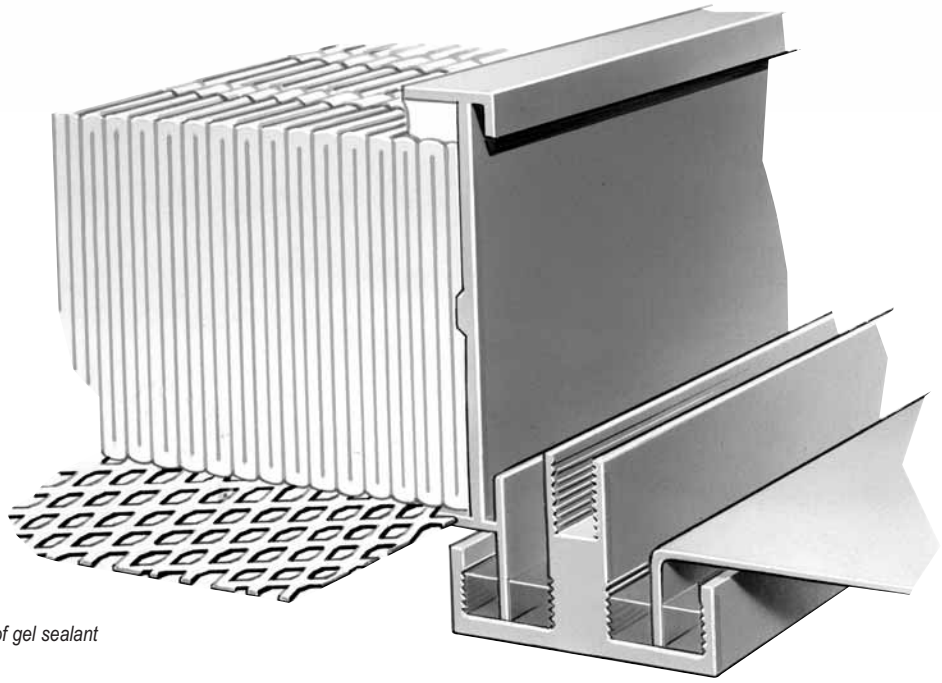


Pressure plenum

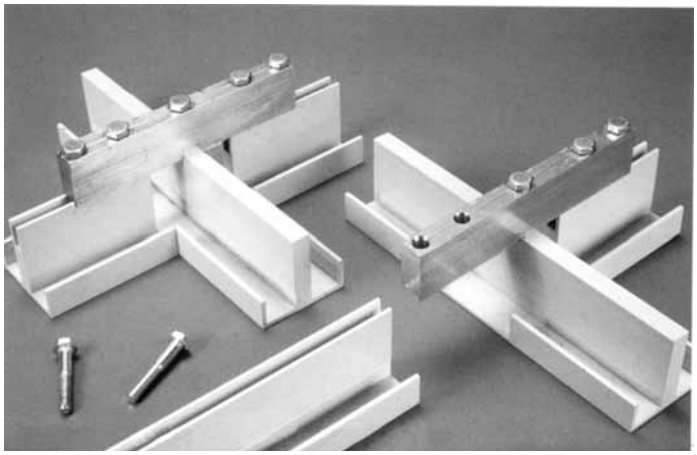
Silicone Gel Sealant

The AstroGel III grid system uses a two part silicone gel sealant that adheres firmly to the knife edge on the filter to form an airtight seal. The gel releases cleanly when the filter is removed and cleans up completely, leaving no trace of film.

A urethane gel sealant is also available when required.



Closeup of gel sealant



Main Channels, Cross Channels, Grid Assembly
Installation time is kept to a minimum, due to the small number of components that make up the AstroGel III design. Grooved, self aligning splice bars allow easy alignment at grid intersections. All prime parts are individually marked for easy identification.

Key Construction Features Set AstroGel III Apart

The AstroGel III grid system consists of extruded aluminum 2" E-channel members bolted together and sealed. The 12-foot long main channels feature a solid center leg drilled and tapped on 1-foot centers for alignment and suspension. The cross channels contain a continuous tapping groove in the center leg, enabling the grid to bolt together easily. This continuous tapping groove also allows field modification of cross channels with a simple straight saw cut. No rivets or time-consuming installation procedures are required.

The AstroGel III grid system can accommodate sprinkler and utility penetrations as well as suspension of items such as piping, beneath the grid. Grid members are a full 2 inches wide.

The grid is not progressive; therefore, you can easily disassemble it should modifications be required. Grid joints can be caulked internally or externally.

Construction Features

Grid Finish: All room-exposed surfaces factory finished with electrostatically-applied, baked-on, white polyurethane powder paint.

J-Channel: Extruded aluminum wall ('J') channels are shipped in 12' lengths and precision factory-notched on either 24" or 48" centers. Wall channel joints are caulked and butted for fast, continuous installation.

J-Corner: Wall channel corners are field mitered as required by room layout and caulked. Recessed aluminum clip angles are riveted to each corner of the extruded wall channel, permanently aligning and securing the joint.

Wall Connections: Each 90º wall connection utilizes a tee-shaped stainless steel connector bracket which is aligned with a notch in the wall channel and then bolted to an intersecting main or cross channel. Lateral joint movement is eliminated by riveting bracket to wall channel.

Mains: 12' extruded main channels are notched exactly on 24" centers and jig-tapped on 12" centers for precision alignment. Mains feature squared, butted end connections which can be quickly aligned and progressively joined while maintaining 24" notch intervals. Main channels are coupled together using grooved connector bars and bolts provided.

Cross Channels: 4' extruded cross channels feature a continuous tapping groove for fast alignment. All cross channel connections can be removed or installed from below the grid.

Floating Perimeter: An excellent solution for interfacing grids with uneven walls and obstructions or just to maintain standard filter sizes. Floating perimeters are suspended by hangers at corners and at 48" intervals thereafter.

Closure of the space between the floating perimeter and wall is accomplished with custom "Zee" flashings of 0.40" (minimum) prepainted aluminum stock. (Supplied by others).

Floating Corners: Corners of floating perimeter sections are field mitered as required, supported, caulked and then joined by riveting full height, ⅛" thick aluminum clip angles to the suspended extrusions.

Filter: (Plenum) For pressurized plenum applications AAF offers filtration efficiencies ranging from 99.99% up to 99.999999% on particle sizes from .30 to .10 micrometers.

Modules: (Ducted) Where ducted module systems are preferred, AAF TM-4F series disposable modules with 10", 12" or 14" inlets and internal and disc type dampers are recommended.

Lights—Teardrop: 6" deep teardrop type light fixtures may be attached directly to the flat portion of the grid onto the cross channels.

Lights—Closed Top Troffer: Closed top troffers are installed in 2x4 grid opening in place of TM series modules. 1x4 fixtures are also available. Use of closed top type troffers is NOT recommended for Class 100 (or better) cleanliness requirements because laminar airflow is not attainable with this type fixture.

Lights—Open Top Troffer: Offered as the solution where teardrop lights are unacceptable yet full laminarity of airflow is essential. The open top (piggyback) light fixture design features a flow-thru provision which is accomplished by mounting a fluid-sealed module on top of the light fixture. The filter module remains independent of the light troffer and may be changed without disturbing the open-top light fixture.

Sprinkler—Mini Pan: Separate 6x24 grid openings for sprinklers each including a 16 gauge white steel "mini" pan for fluid-sealed 1" pipe sprinkler drop are available.

Sprinkler—Extra-Wide: This special extra-wide (3.3") cross channel is preferred where both appearance and maximization of filter area are issues.

Sprinkler Adapter: This one-piece gel-sealed adapter pan will convert any standard 2x4 grid opening to accommodate a separate 1" sprinkler drop, and a slightly under size filter. An excellent solution where changes in room layouts will necessitate addition or relocation of sprinkler drops without restructuring of the grid.

Sprinkler Kit: Solves the problem of interfacing 1" sprinkler drops through random locations in large blank pans.

Connector Bars: Extra heavy 1" high extruded aluminum connector bars are grooved to insure positive alignment of continuing grid members. Connector bars are factory drilled for ¼" capscrews and sized to suit the type of intersection.

Hangers: 9" long, ¼" stainless steel adapter rods and galvanized turnbuckles are provided for installation on 4' x 4' centers. Stainless steel adapter rods eliminate potential thread problems due to corrosion, galling or plating buildup.

Gel: Silicone gel (standard). Urethane gel (optional). Gel is field installed one day before filter installation (by others).

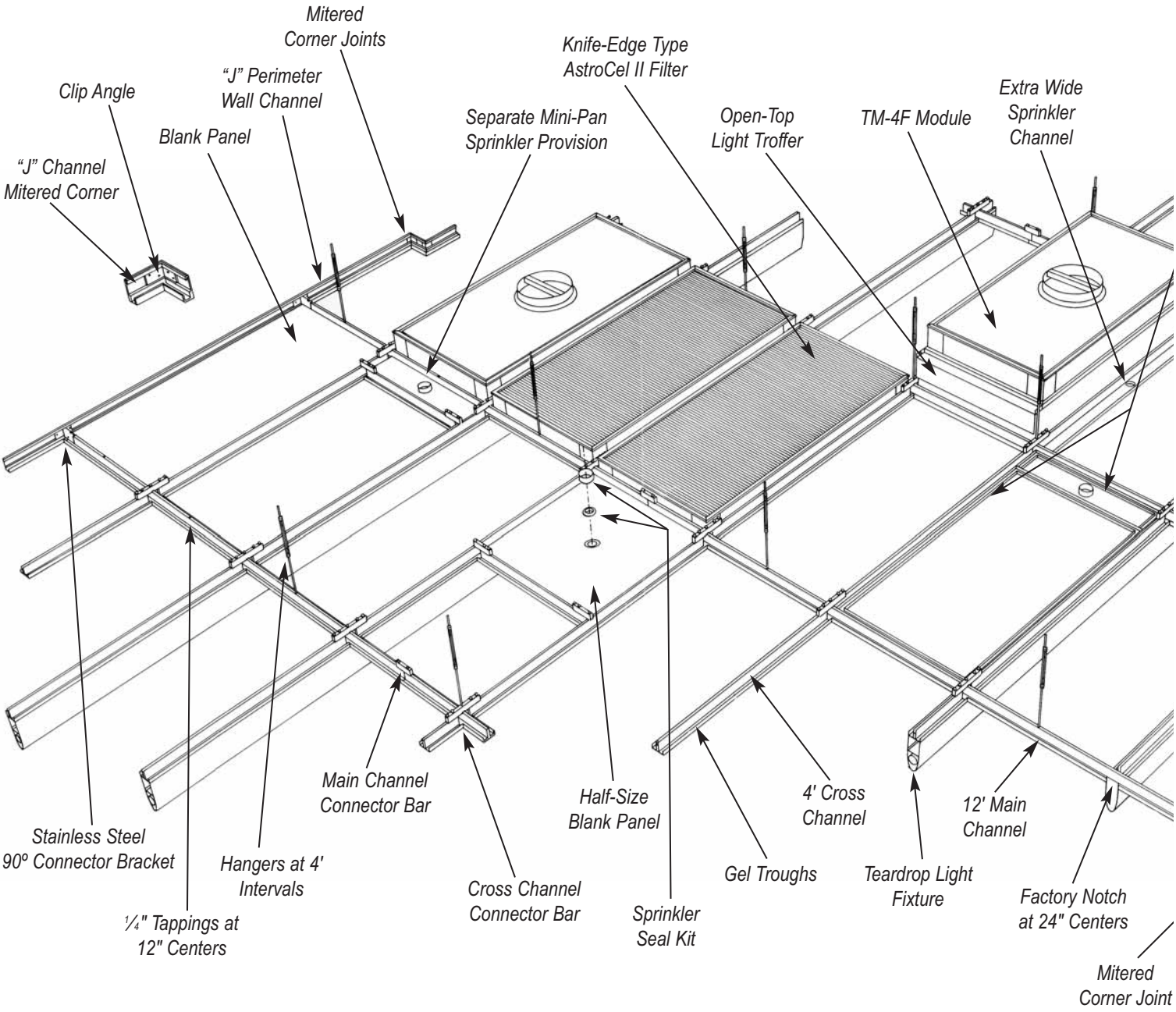
Blanks: Blank pans are fabricated from 16 gauge steel with welded corners and finished with white powder paint to match the grid.

Caulking: Joints and seams may be sealed from either side of the grid because joints are designed to be permanently submerged in cured gel.

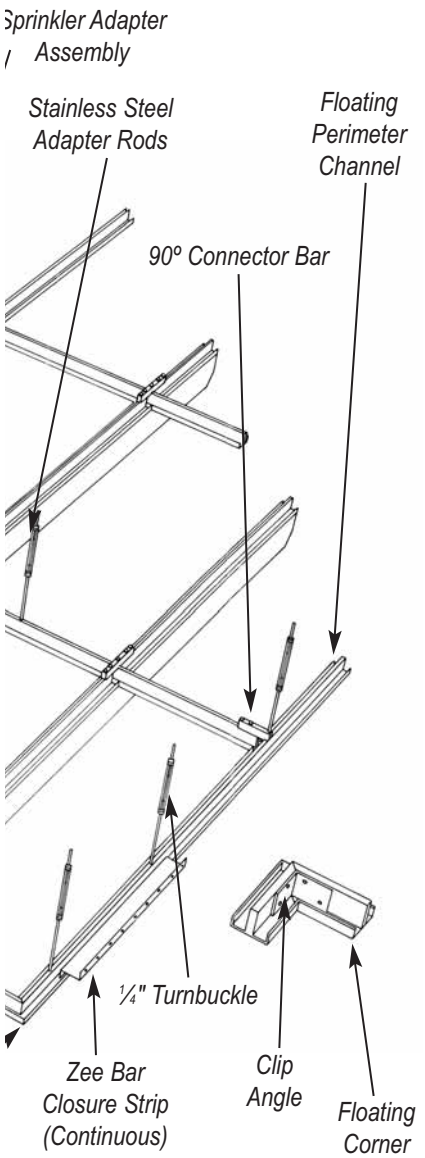
Drawings: AAF furnishes a CAD-generated reflected ceiling layout including all details for approval.

All prime parts are individual marked, by number and keyed to the material list. Each shipping carton and pallet are also carefully marked to clearly indicate the contents. This system saves substantial time and labor locating parts during installation.

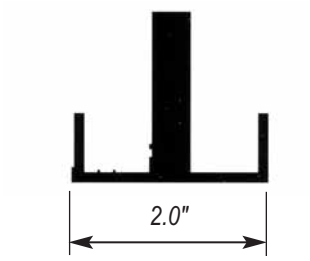
Grid with Various Options



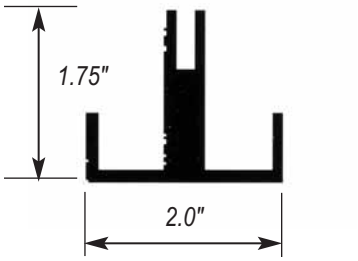
Grid Construction and Assembly Details



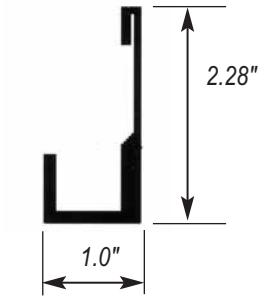
Extrusion Profiles



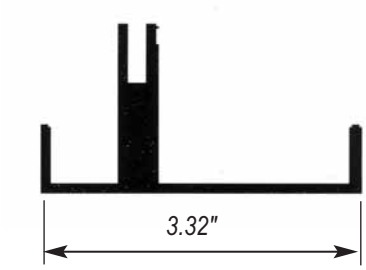
Main Channel



Cross Channel

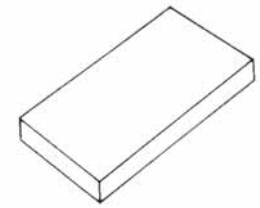


Wall Channel

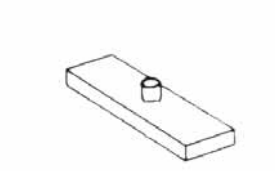


Optional Sprinkler Cross Channel

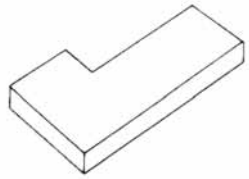
Blank Pans for AstroGel III Grid



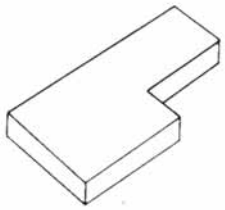
Conventional



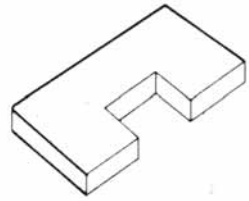
Sprinkler Pan



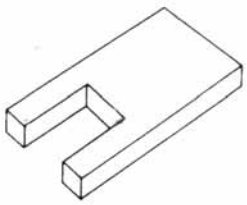
"L" Shaped



"L" Shaped

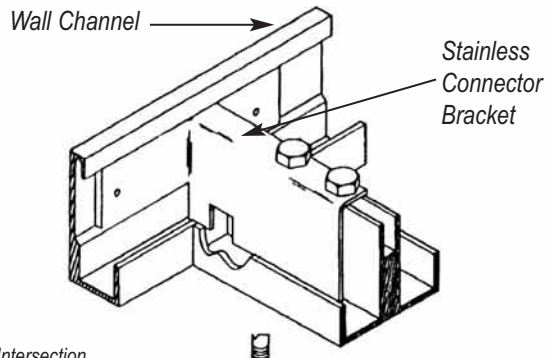


Notched-Long Side

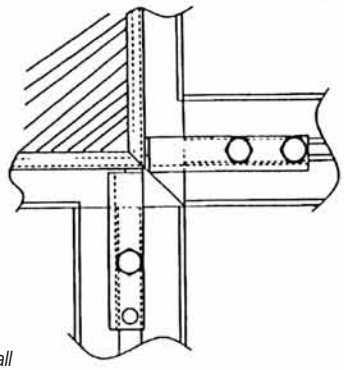


Notched-Short Side

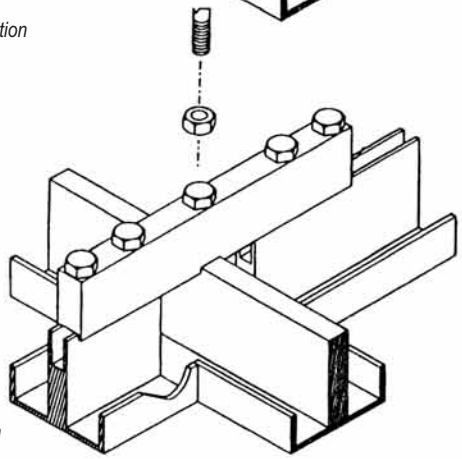
Grid Construction and Assembly Details



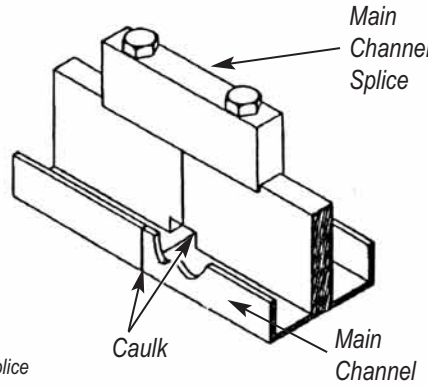
Perimeter Intersection



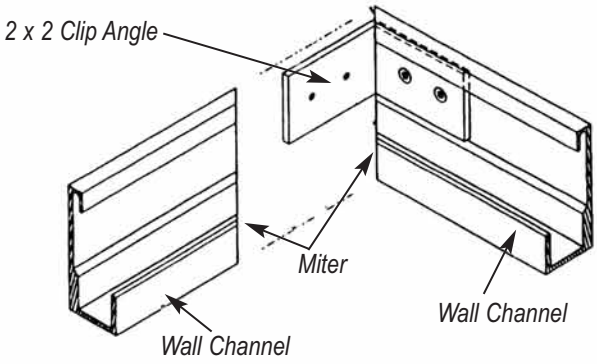
Corner Attachment @ Wall



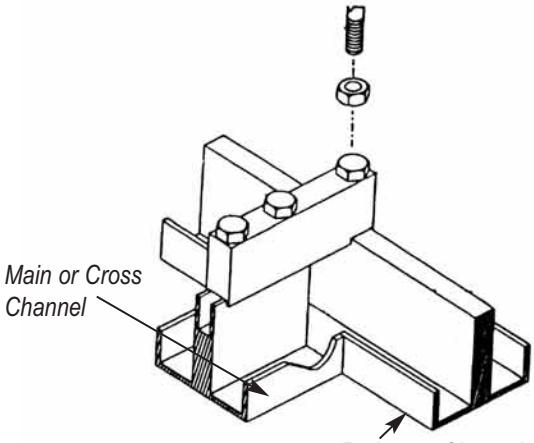
4-Way Intersection



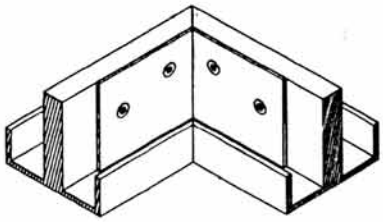
Main Channel Splice



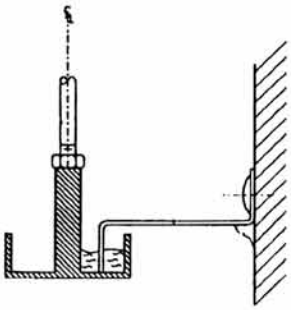
Inside Corner - Wall Channel



Floating Perimeter Intersection



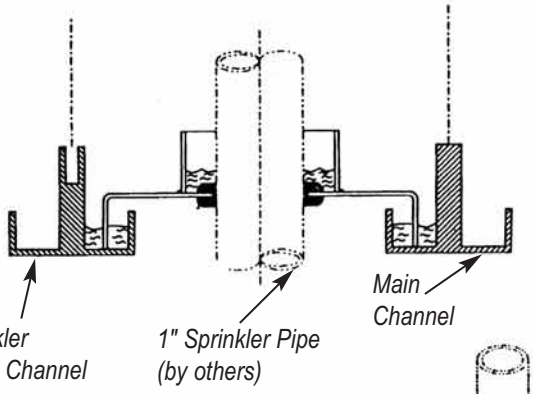
Mitered Corner at
Floating Perimeter



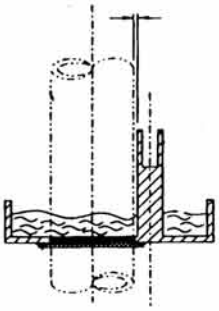
Optional Floating
Perimeter with Zee Bar

Grid Sprinkler Options

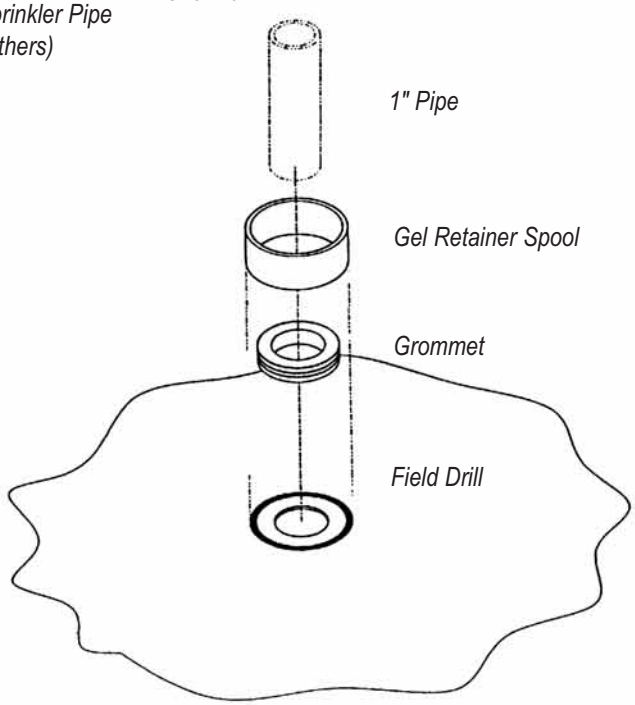
Standard Mini-Pan Sprinkler Penetration



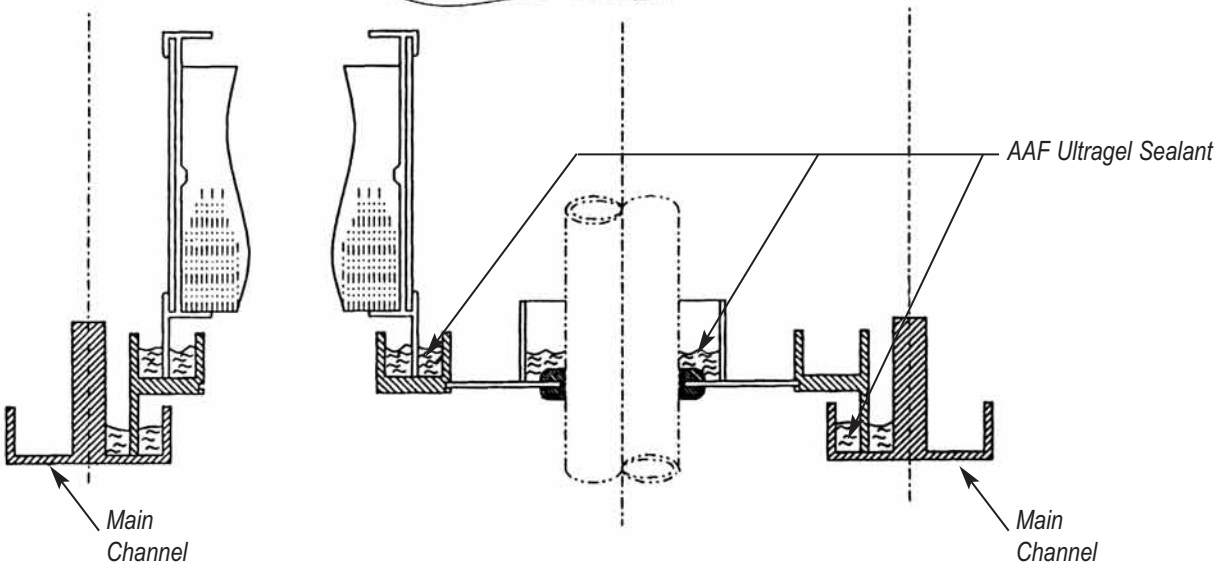
Optional Sprinkler Penetration Through Extra Wide Cross Channel



Sprinkler Penetration Through Blank Panel



Optional Sprinkler Adapter Panel



AmericanAirFilter

AstroGel™ III

Teardrop

Teardrop fixtures attach directly to the flat portion of the AstroGel grid onto the cross channels. Cosmetic end caps are supplied for the end of each row of light fixtures.

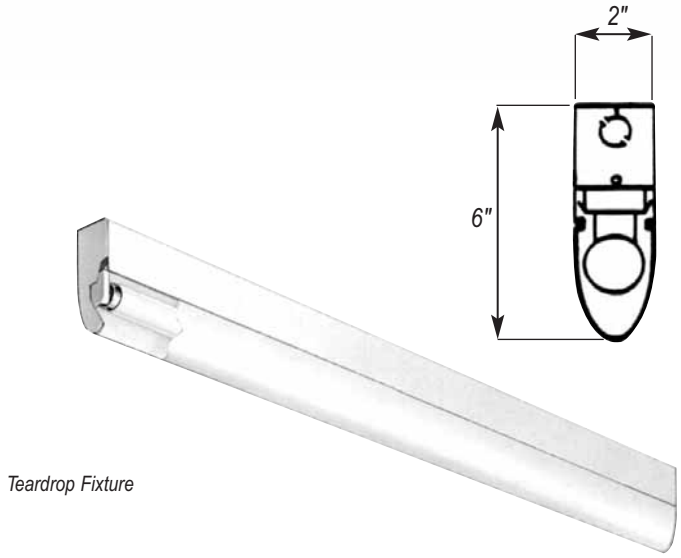
Open Top Troffer

The open top light fixture is a piggyback design with a gel filled channel which accepts the knife edge TM Series ducted module installed on top of the fixture. (Open top fixtures are not recommended for pressurized plenum applications.) The top of the fixture is made of heavy gauge, flattened expanded steel to allow free flow of clean air around the lights. This flow-through provision maintains full laminar flow in the cleanroom. The expanded metal top is welded to the fixture to prevent racking. The filter is installed independently of the light fixture and can be changed without disturbing the open top troffer.

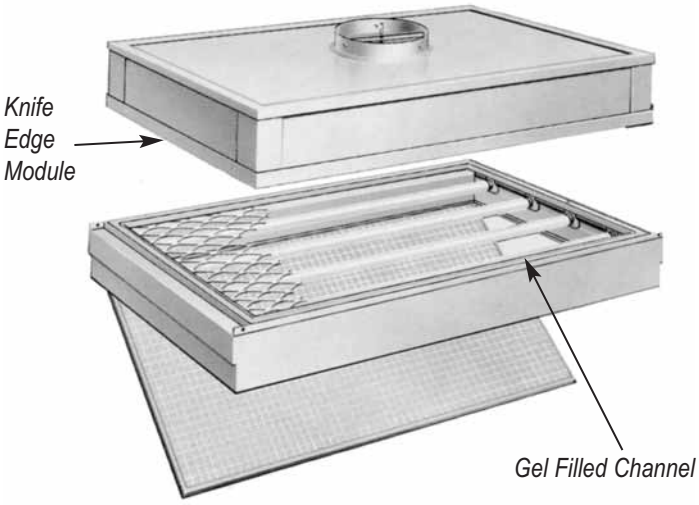
AAF open top fixtures are Underwriters Classified as air handling troffers. They have a ½" acrylic egg crate hinged lens.

Closed Top Troffer (not shown)

Closed top troffers are installed in 2x4 grid openings in place of TM Series ducted modules. 1x4 closed top fixtures are also available where the ceiling layout requires one foot increments. (Closed top fixtures are *not* recommended for pressurized plenum applications. They are also *not* recommended for Class 100 or better cleanrooms as laminar flow in not attainable with this type of fixture).



Teardrop Fixture



Open Top Troffer

AAF INTERNATIONAL *Better Air is Our Business®*

10300 Ormsby Park Place Suite 600
Louisville, Kentucky 40223-6169
www.aafintl.com

Customer Service 877.228.7007
Fax 877.228.8008

ISO Certified 9001:2000

AAF has a policy of continuous product research and improvement and reserves the right to change design and specifications without notice.

AFP-1-419A AUG '07 QG 2M