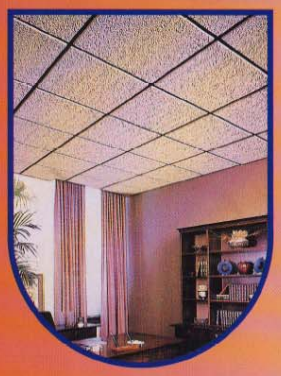
FRAMEWORK CEILING GRID SYSTEMS

MID MODULE

MasterFrame

ASTM INTERMEDIATE DUTY
1-1/2 Hour Fire Rated



MasterFrame...
The Ideal Suspended
Framework For All Ceilings

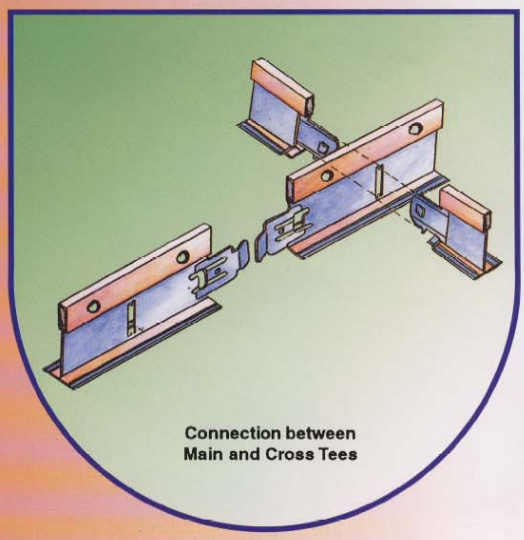
FRAMEWORK

MasterFrame

ASTM INTERMEDIATE DUTY

MasterFrame MID Module is a 24mm flange exposed ceiling grid system designed for intermediate duty applications according to ASTM C-635 classification. It is used primarily for commercial structures in which the quantity and weight of ceiling fixtures (lights, air diffusers, etc.) can be anticipated.

Tested with a ceiling load of 22kg/m without the mid-span deflection exceeding 3.33mm (L/360 on 1.2m hanger spacing), the system is recommended for large commercial projects and is compatible to all types of ceiling boards made by established companies all over the world.



Connection between Main and Cross Tees

Production Process

All components of the system are rollformed, perforated, press formed and cut to length on a continuous CNC production line to the BS 2994 standard. This manufacturing process produces a balanced grid profile with precision and accuracy for stronger and more accurate modules.

Our Project References

- SIA Training Complex, Singapore
- Faculty Buildings at NUS Campus, Singapore
- JTC Standard & Flatted Factory Building, Singapore
- NTU Workshop Complex, Singapore
- Panasonic Factory, Pasir Gudang
- Kuantan Airport Passenger Terminal, Kuantan
- Jakarta International School, Jakarta
- Hong Kong Polytechnic, Hong Kong

Cross Tee Fire Nib

Rasa Sentosa Beach Resort

Siemens Building

Fire Protection

MasterFrame MID Module is non-combustible according to BS 476 Part 20.

With the proprietory fire expansion slot on the main tees and fire nibs on the cross tees, the system is designed to provide expansion relief during fires and maintain the structural integrity of the complete ceiling module. This feature helps to prevent the acceleration of fire through ceiling plenum and prevent accidents from falling objects during the process of evacuation.

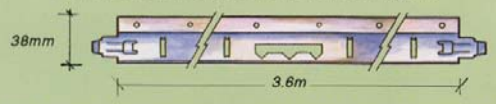
When used with an approved ceiling panel, the system is capable of providing effective protection to structural steel beams supporting a fire resistant floor for a period of 92 minutes according to BS 476 Part 23 (1987).

A fire test in conjunction with Thermatex Mineral Fiber Ceiling Boards had been conducted at the Warrington Fire Research Centre on the 14th of January 1992. It achieved a fire rating of 92 minutes. Copies of the test report is available upon request.

Component Features

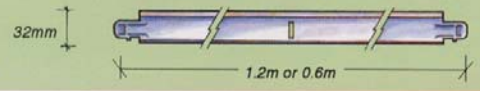
Main Tee

Main Tee is a double web section of 38mm high. It is made in standard length of 3.6m with integral push lock splices at both ends for easy interconnection. The end splices have been tested to sustain a pulling force of 68kg before separation. The bulb is prepunched with 6mm holes at every 75mm for hanger fixing. The stalk is punched with "H" slots at 75mm from ends and 150mm in between to receive cross tees. A fire expansion slot is punched on the stalk at 225mm from one end to provide expansion relief during fire.



Cross Tee

Cross Tee is a 32mm high double web section with joggled flange at both ends. It has integral splices at both ends for straight entry to the main tee for interlocking connections. The precise accuracy of the joggles ensure a minimum "floating effect" of ceiling boards. Each end splice has a built-in fire nib which will be broken as a result of linear expansion of the grid during a fire, allowing for the movement of cross tees to maintain the structural integrity of the ceiling system. Cross tees are available in the standard 1.2m or 0.6m per length.



Physical Properties

Components are manufactured from Hot Dipped Galvanised Steel according to BS 2989 and JIS G3302 Standards with Z18 Zinc Coating (180g/m2). The exposed flanges are capped with precoated metal strips with polyester coatings of 15 microns dry film thickness.

Standard Colours

Mist White (MW)	Snow White (SW)	Satin Silver (S)
Ivory (I)	Black (B)	Platinum (P)

Other colours can be custom made according to the supplied colour samples subject to an agreed order quantity.

Warranty

All components of MasterFrame MHD Modules are guaranteed for dimensional accuracy and against corrosion according to Framework's standard warranty policy.

Structural Performance

Load Test Data Per ASTM C-635 based on 1.2m hanger spacing.

Component	Product Code	Simple Span Concentrated Load at Center Kg/m	Uniform Load ASTM C-635 Kg/m	ASTM Class
Main Tee	FMI 36	13.6	22.0	Intermediate Duty
Cross Tee	FCI 12	10.4	15.5	-
Cross Tee	FCI 06	14.2	30.2	-

Guide Specification

The ceiling suspension system shall be MasterFrame MID Module as manufactured by Framework Building Products (Pte) Ltd. It shall be suspended with 4mm diameter adjustable hanger rod system similar to FrameRod.

The system shall be rollformed, perforated, press formed and cut to length on a continuous CNC production line. It shall comply to ASTM C-635 as intermediate Duty System capable of carrying a load not less than 22 kg/m (18.3 kg/m2 on 1.2m hanger spacing) without the mid-span deflection exceeding L/360.

Fire Expansion Slot At Main Tee

The system shall satisfy 1-1/2 hour fire rating when tested in accordance to BS 476 Part 23 and be acceptable to the local fire authority.

Sufficient evidence of the compliance to the standards must be submitted to the architect for approval before materials are used at the site.

The grid system shall be made of hot dipped galvanised steel conforming to BS 2989 and/or JIS G3302 with a zero spangle zinc coating of not less than 180 gm/m2. It shall be guaranteed against corrosion by the manufacturer according to the standard warranty policy.

The exposed flange shall be 24mm and capped with precoated metal strip with factory applied polyester of 15 microns dry film thickness.

Main Tees shall be 38mm high and of a double web construction similar to MasterFrame FMI type. Both ends of the main tee shall have integral splices which can be joined firmly and shall not be separated with a pulling force not exceeding 68 kg. Hanger holes shall be round and not smaller than 6mm diameter punched on the bulb of the main tee. A fire expansion slot shall be provided at the main tee to provide relief for thermal expansion during fire.

The Cross Tees shall be 32mm high and of a double web construction similar to FCM type. The end splices shall be an integral part of the tee section and of the push lock type. The cross tee splice shall be equipped with a fire nib at the bottom to proviide relief of expansion during fire.

All accessories of the suspension system such as wall angles, hanger rods, hold down clips etc shall be supplied and installed according to the manufacturer's recommendation.

Effect After Exposure To Fire

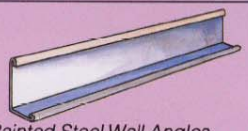
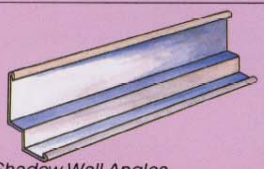
Component Specification

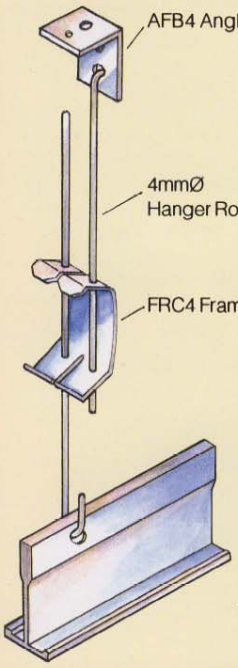
Component	Product Code	Section Height (mm)	Length (m)	Quantity Per Ctn (Pieces)	Approx Weight per Ctn (kg)
Main Tee	FMI 36	38	3.6	20	26
Cross Tee	FCI 12	32	1.2	60	23
Cross Tee	FCI 06	32	0.6	60	12

Imperial and other sizes are available upon request

Accessories

Wall Angles and Mouldings

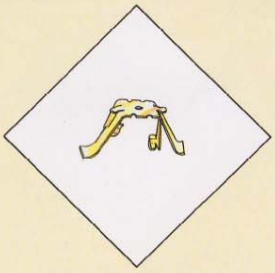
Component	Product Code	Size (mm)	Length (m)	Quantity Per Ctn (Pieces)	Approx Weight per Ctn (kg)
 *Aluminium Capped Wall Angles*	FAA 1919	19 x 19	3.6	40	23
	FAA 2414	24 x 14	3.6	40	23
	FAA 2419	24 x 19	3.6	40	26
	FAA 2424	24 x 24	3.6	40	28
 *Painted Steel Wall Angles*	FAS 1919	19 x 19	3.6	40	22
	FAS 2414	24 x 14	3.6	40	22
	FAS 2419	24 x 19	3.6	40	25
	FAS 2424	24 x 24	3.6	40	27
 *Shadow Wall Angles*	FAW 1914	19 x 14	3.6	40	28
	FAW 1919	19 x 19	3.6	40	31
	FAW 2419	24 x 19	3.6	40	33
	FAW Shadow Wall Angles are recommended for use in improving the appearance of celling installations, especially for walls with uneven surfaces.				

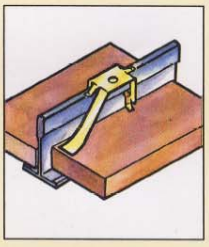


FrameRod Adjustable Hanger System

Comprises of 4mmØ galvanised steel rods and heat tempered spring clip. It is designed to carry a ceiling load of 75 kg/point and is recommended for heavy and intermediate duty installations.

(Refer to FrameRod brochure FW 07/1994 for more details)





FBC Hold Down Clip

Made from heat tempered spring steel with corrosion protection coating to protect against corrosion. It is recommended for fire rated installations to prevent the lifting of boards due to positive pressure differentials.

Other Framework Products

MasterFrame

MasterFrame MLD Module - 24mm Light Duty System
MasterFrame MHD Module - 24mm Heavy Duty System

MicroFrame

MicroFrame MLD Module - 14mm Light Duty System
MicroFrame MID Module - 14mm Intermediate Duty System

MitreFrame

MitreFrame 815 Module AluSteel Featured Grid System
MitreFrame 1615 Module AluSteel Featured Grid System

MegaFrame

MegaFrame Metal Furring Systems

FrameRod

FrameRod Adjustable Hanger System

Manufactured by

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