MITSUBISHI ELECTRIC

Changes for the Better

for a greener tomorrow

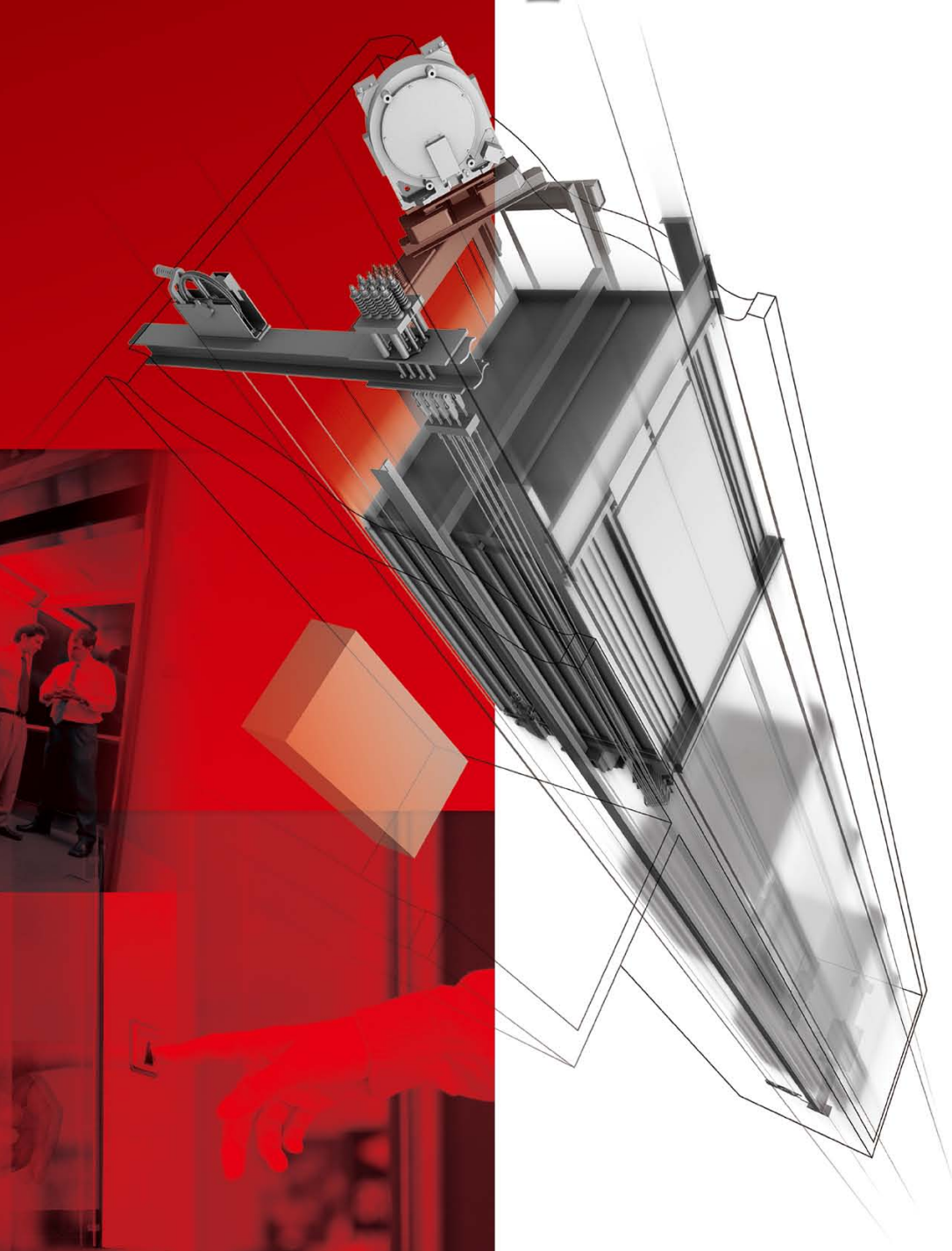
Quality in Motion

PASSENGER ELEVATORS
(MACHINE-ROOM-LESS SYSTEM)
For USA

DIAMOND TRAC







Principle

Based on our policy, “Quality in Motion”,
we provide elevators and escalators that will
satisfy our customers with high levels of
comfort, efficiency, ecology and safety.



Mitsubishi Electric elevators, escalators and building management systems are always evolving, helping achieve our goal of being the No.1 brand in quality.
In order to satisfy customers in all aspects of comfort, efficiency and safety while realizing a sustainable society, quality must be of the highest level in all products and business activities, while priority is place on consideration for the environment.
As the times change, Mitsubishi Electric promises to utilize the collective strengths of its advanced and environmental technologies to offer its customers safe and reliable products while contributing to society.

We strive to be green in all of our business activities.

We take every action to reduce environmental burden during each process of our elevators’ and escalators’ lifecycle.

DIAMOND TRAC

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The Evolution of Mitsubishi Electric Quality

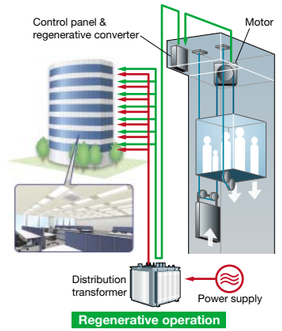
Mitsubishi Electric elevator quality is constantly evolving.

Our machine-room-less elevator provides technological advances

that deliver a world-class ride in terms of comfort, reliability and safety.

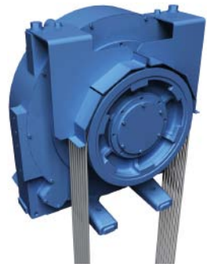
Reusing energy: Regenerative Converter (PCNV) (Optional)

Elevators usually travel using power from a power supply (powered operation), however, when they travel down with a heavy car load or up with a light car load (regenerative operation), the traction machine functions as a power generator. Although the power generated during traction machine operation is usually dissipated as heat, the regenerative converter transmits the power back to the distribution transformer and feeds it into the electrical network in the building along with electricity from the power supply. Compared to the same type of elevator without a regenerative converter, this system provides an energy-saving effect of up to 35 percent. (Reduction in CO_2 emissions: 1400kg/year)
In addition, the regenerative converter has the effect of decreasing harmonic currents.



Reduced torque ripple for a comfortable, smooth ride

The gearless traction machine with the new PM (permanent magnet) motor is packed with cutting-edge technology, such as our unique stator-core structure and built-in double brakes. This optimized motor design dramatically reduces the level of torque ripple for a smooth and quiet ride.



Ensuring that quality remains first-rate

Our elevators include features designed to reduce the need for maintenance – such as double brakes built into the PM motor. During scheduled maintenance, equipment in the top of the hoistway is easily accessible from the maintenance platform on top of the elevator cage. In addition, Mitsubishi Electric's highly trained service personnel continually ensure that our elevators run smoothly and safely.

High-Speed computer processor

The high-accumulation LSI integrating digital control circuitry has significantly increased the speed of the computer processing, enabling precise control of the traction motor during acceleration and deceleration. This innovation delivers a quality ride with the least noise and vibration.



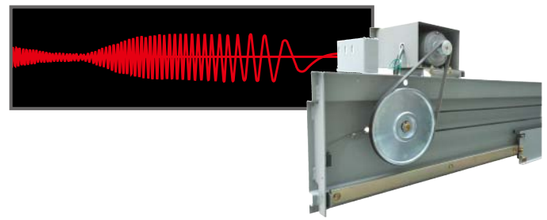
Innovative technology increases efficiency and reliability

More technological advances, such as the high-accumulation LSI and low-noise PWM inverter, enable the VVVF inverter to deliver smooth, high-precision control of the traction machine. In addition, the IU (Inverter Unit) acts as a high-efficiency power supply circuit for the motor drive and, along with the PM motor, delivers greater energy savings. The result is a more efficient drive control.

Advanced door controls

VVVF* inverter control has been adopted to ensure smoother and quieter door operations, thereby enhancing passenger safety and product reliability. Our innovative door operation system employs a highly efficient "one-chip RISC microcomputer" which detects the constant variations on each floor in the door load, the strength of the wind, and even sediment in the sill grooves. It adjusts the door open and close speeds, as well as the door motor torque as needed for each floor using the auto tuning function. The learning-capable door load detector immediately reverses the doors when abnormal load is detected on the doors.
Additionally, our robust door operators are structurally isolated from the cab to allow for smooth, quiet operation.

*VVVF: Variable Voltage Variable Frequency.



Freedom of Layout

Because the machine is installed within the hoistway,

there are far fewer restrictions on building design.

Architects and interior designers

have more design freedom than ever before.

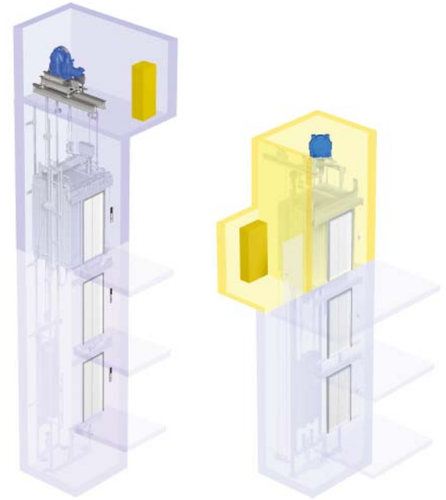
More architectural freedom

Architects, builders, and even interior designers will appreciate the new design freedom that comes with the machine-room-less system. A machine room is no longer needed, as all machineries successfully fit into the hoistway, except the control panel, which can be placed within a 98-foot, 5-inch radius of the traction machine. Also, the load stress of our conventional elevator with a machine room applies on the building structure, whereas the guide rails of DIAMOND TRAC support as much as 75 percent of the stress, for building friendliness.

Machine room space savings*

Miniaturization of the hoisting machine using a permanent magnet gearless motor allows the machine to be placed inside the elevator hoistway. The result is a dramatic reduction in machine room size whereby only space for the controller needs to be considered. Furthermore, the controller room location is now more flexible, resulting in building design freedom.

*This product complies with both ASME A17.1 and other applicable codes.

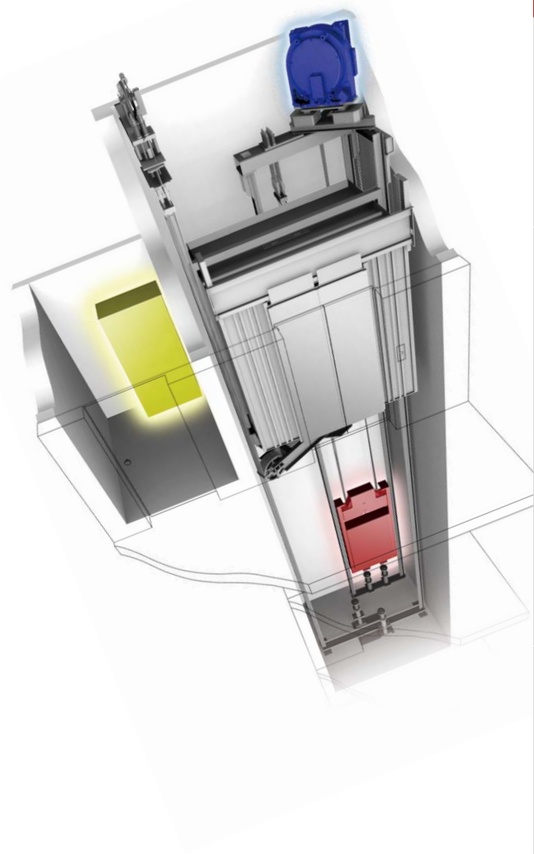


GPM-IIILU
(Conventional)

DIAMOND TRAC

Miniaturized and optimally configured

Mitsubishi Electric has succeeded in miniaturizing key elevator equipment. The gearless traction machine with PM motor is installed within the hoistway. This arrangement frees up space normally required for separate machine rooms or penthouses. Equipment is configured for easy maintenance from car top, and the entire compact system is optimally organized for performance and service.



CAR SIGNAL FIXTURES

Car Operating Panels



CBF-US111



Plastic round-type
micro stroke click button
(standard)



CBV-US111



Stainless steel round-type
micro stroke click button
(optional)

Faceplate	Stainless steel hairline
Display panel	Smoky gray plastic, matt surface
Direction and position indicator	Digital LED dot display, orange when illuminated
Car button	Round-type micro stroke click button in gray plastic with milky white mark in center as response light (CBF-US111)
	Round-type micro stroke click button in stainless steel (CBV-US111)
Response light	LED lamp, yellow-orange when illuminated
Braille plate	Black plate with tactile floor name, symbol and Braille next to car button

Car Lantern





CLV-US110
(optional)

Faceplate	Stainless steel hairline
Lighting	Clear acrylic with frosted finish, yellow-orange when UP side is illuminated, and red when DOWN side is illuminated

HALL SIGNAL FIXTURES

DIAMOND TRAC

Hall Buttons



HBF-US110
Plastic round-type
micro stroke click button
(standard)



HBV-US110
Stainless steel round-type
micro stroke click button
(optional)



HBF-US210
Plastic round-type
micro stroke click button
(optional)



HBV-US210
Stainless steel round-type
micro stroke click button
(optional)

Faceplate	Stainless steel hairline
Call button	Round-type micro stroke click button in gray plastic (HBF-US110, HBF-US210)
	Round-type micro stroke click button in stainless steel (HBV-US110, HBV-US210)
Response light	LED lamp, yellow-orange when illuminated
Graphic	Etching

Hall Lanterns

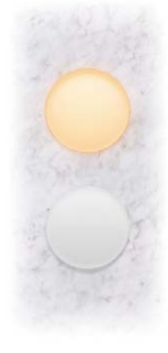


HLV-US210
(standard)



HLV-US110
(optional)

Faceplate	Stainless steel hairline
Lighting	Clear acrylic, yellow-orange when UP side is illuminated, and red when DOWN side is illuminated



HLVD-US20
Without faceplate
(optional)

*Wall finish is not included in elevator contract.

Lighting	Milky white acrylic, yellow-orange when UP side is illuminated, and red when DOWN side is illuminated

Actual elevator color may differ slightly from that shown.

Profile
Design
Functions
Spec.
Info.

Standard Features

■ EMERGENCY OPERATIONS AND FEATURES

Feature	Abbreviation	Description	1C to 2C 2BC	3C to 4C Σ AI-22	3C to 8C ΣAI-2200C
Earthquake Emergency Operation	EER-DS	In case of earthquake detection, the elevator stops at the nearest available floor and shuts down with the door open. (Detailed operation conforms to the local code.)	√	√	√
Firefighters' Emergency Operation	FE	In case of fire, the elevator performs firefighters' emergency operation (Phase I and Phase II) conforming to the local code.	√	√	√

■ DOOR OPERATION FEATURES

Feature	Abbreviation	Description	1C to 2C 2BC	3C to 4C Σ AI-22	3C to 8C ΣAI-2200C
Automatic Door-open Time Adjustment	DOT	The amount of time that doors are open will automatically adjust depending on whether the stop was called from the hall or the car, to allow smooth boarding of passengers or loading of baggage.	—	—	√
Automatic Door Speed Control	DSAC	Door load on each floor, which can depend on the type of hall door, is monitored to adjust the door speed, thereby making it consistent throughout all floors.	√	√	√
Door Load Detector	DLD	When excessive door load has been detected while opening or closing, the doors immediately move in the reverse direction.	√	√	√
Door Nudging Feature — With Buzzer	NDG	The doors slowly close when they have remained open for longer than the preset period with alarm sound.	√	√	√
Door Sensor Self-diagnosis	DODA	Failure of non-contact door sensors is checked automatically, and if a problem is diagnosed, the door-close timing is delayed and the closing speed is reduced to maintain elevator service and ensure passenger safety.	√	√	√
Electronic Doorman	EDM	Door open time is minimized using safety ray(s) or multi-beam door sensors that detect passengers boarding or exiting.	√	√	√
Multi-beam Door Sensor	—	Multiple infrared-light beams cover some height of the doors as they close to detect passengers or objects.	√	√	√
Reopen with Hall Button	ROHB	Closing doors can be re-opened by pressing the hall button corresponding to the traveling direction of the car.	√	√	√
Repeated Door-close	RDC	Should an obstacle prevent the doors from closing, the doors will repeatedly open and close until the obstacle is removed.	√	√	√

■ OPERATIONAL AND SERVICE FEATURES

Feature	Abbreviation	Description	1C to 2C 2BC	3C to 4C Σ AI-22	3C to 8C ΣAI-2200C
Automatic Bypass	ABP	A fully loaded car bypasses hall calls in order to maintain maximum operational efficiency.	√	√	√
Automatic Hall Call Registration	FSAT	If one car cannot carry all waiting passengers because it is full, another car will automatically be assigned for the remaining passengers.	√	√	√
Backup Operation for Group Control Microprocessor	GCBK	An operation by car controllers which automatically starts to maintain elevator operation in the event that a microprocessor or transmission line in the group controller has failed.	√ †	√	√
Car Call Canceling	CCC	When a car has responded to the final car call in one direction, the system regards remaining calls in the other direction as errors and clears them from the memory.	√	√	√
Car Fan Shut Off — Automatic	CFO-A	If there are no calls for a specified period, the car ventilation fan will automatically turn off to conserve energy.	√	√	√
Car Light Shut Off — Automatic	CLO-A	If there are no calls for a specified period, the car lighting will automatically shut off to conserve energy.	√	√	√
Continuity of Service	COS	A car which is experiencing trouble is automatically withdrawn from group control operation to maintain overall group performance.	√ †	√	√
False Call Canceling — Automatic	FCC-A	If the number of registered car calls does not correspond to the car load, all calls are canceled to avoid unnecessary stops.	√	√	√
Independent Service	IND	Exclusive operation where a car is withdrawn from group control operation for independent use, such as maintenance or repair, and responds only to car calls.	√	√	√
Next Landing	NXL	If the elevator doors do not open fully at a destination floor, the doors close and the car automatically moves to the next or nearest floor, where the doors will open.	√	√	√
Overload Holding Stop	OLH	A buzzer sounds to alert the passengers that the car is overloaded; the doors remain open and the car does not leave that floor until enough passengers exit the car.	√	√	√
Safe Landing	SFL	If a car has stopped between floors due to an equipment malfunction, the controller checks the cause, and if it is considered safe to move the car, the car will move to the nearest floor at a low speed and the doors will open.	√	√	√

■ GROUP CONTROL FEATURES

Feature	Abbreviation	Description	1C to 2C 2BC	3C to 4C Σ AI-22	3C to 8C ΣAI-2200C
Car Allocation Tuning	CAT	The number of cars allocated or parked on crowded floors are controlled not just according to the conditions on those crowded floors, but also on the operational status of each car and the traffic on each floor.	—	—	√
Car Travel Time Evaluation	—	Cars are allocated to hall calls by considering the number of car calls that will reduce passenger waiting time in each hall and the travel time of each car.	—	√	√
Cooperative Optimization Assignment	—	The system predicts a potential hall call which could cause longer waiting time. Car assignment is performed considering not only current and new calls but also near-future calls.	—	—	√
Distinction of Traffic Flow with Neural Networks	NN	Traffic flows in a building are constantly monitored using neural network technology, and the optimum operational pattern, such as Lunchtime Service or Up Peak Service, is selected or canceled accordingly at the appropriate time.	—	—	√
Dynamic Rule-set Optimizer	DRO	Traffic flows in a building are constantly predicted using neural network technology, and an optimum rule-set for group control operations is selected through real-time simulations based on prediction results.	—	—	√
Energy-saving Operation — Allocation Control	ESO-W	The system selects the elevator that best balances operational efficiency and energy consumption according to each elevator's current location and passenger load, as well as predicted congestion levels throughout the day.	—	—	√
Expert System and Fuzzy Logic	—	Artificial expert knowledge, which has been programmed using "expert system" and "fuzzy logic," is applied to select the ideal operational rule for maximum efficiency of group control operations.	—	√	√
Peak Traffic Control	PTC	A floor which temporarily has the heaviest traffic will be served with higher priority than other floors, but not to an extent that interferes with service to other floors.	—	√	√
Psychological Waiting Time Evaluation	—	Cars are allocated according to the predicted psychological waiting time for each hall call. The rules evaluating psychological waiting time are automatically changed in response to actual service conditions.	—	√	√
Strategic Overall Spotting	SOHS	To reduce passenger waiting time, cars which have finished service are automatically directed to positions where they can respond to predicted hall calls as quickly as possible.	√ †	√	√

■ SIGNAL AND DISPLAY FEATURES

Feature	Abbreviation	Description	1C to 2C 2BC	3C to 4C Σ AI-22	3C to 8C ΣAI-2200C
Basic Announcement	AAN-B	A synthetic voice (and/or buzzer) that alerts passengers inside a car to the fact that elevator operation has been temporarily interrupted by overloading or a similar cause. (Voice available only in English.)	√	√	√
Car Arrival Chime-Car	AECC	Electronic chimes that sound to indicate that a car will soon arrive. (The chimes are mounted on the top and bottom of the car.)	√	√	—
Car/Hall Click Type Call Buttons	—	Call buttons that click softly when touched are fitted as standard.	√	√	√
Flashing Hall Lantern	FHL	A hall lantern, which corresponds to a car's service direction, flashes to indicate that the car will soon arrive.	√	√	√
Inter-communication System	ITP	A system that allows communication between passengers inside a car and the building personnel.	√	√	√

Notes: – = Not applicable †= Not applicable to 1C-2BC

Optional Features

■ EMERGENCY OPERATIONS AND FEATURES

Feature	Abbreviation	Description	1C to 2C 2BC	3C to 4C ΣAI-22	3C to 8C ΣAI-2200C
Emergency Car Lighting	ECL	Car lighting which turns on immediately when power fails to provide a minimum level of lighting within the car. (Choice of dry-cell battery or trickle-charger battery.)	√	√	√
MelEye Mitsubishi Elevators & Escalators Monitoring and Control System	WP-W	Each elevator's status and operations can be monitored and controlled using an advanced web-based technology which provides an interface through personal computers. Special optional features, such as preparation of traffic statistics and analysis, are also available.	√	√	√
Mitsubishi Emergency Landing Device	MELD	In case of power failure, a car equipped with this function automatically moves and stops at the nearest floor using a rechargeable battery, and the doors open to ensure passenger safety. (Max. allowable floor-to-floor distance is 36'-1".)	√	√	√
Operation by Emergency Power Source — Automatic	OEPS-AU	In case of power failure, the elevator moves to the designated floor and opens the door to secure the safety of passengers. Then, the elevator will operate by emergency power until normal power recovery. (Detailed operation conforms to the local code.)	√ †	√	√
Supervisory Panel	WP	A panel installed in a building's supervisory room, which monitors and controls each elevator's status and operations by remotely using indicators and switches provided on request.	√	√	√

■ DOOR OPERATION FEATURES

Feature	Abbreviation	Description	1C to 2C 2BC	3C to 4C ΣAI-22	3C to 8C ΣAI-2200C
Extended Door-Open (Door Hold) Button	DKO-TB	A button located inside a car which keeps the doors open for a longer than usual period to allow loading and unloading of a stretcher, baggage, etc.	√	√	—
3D Multi-beam Door Sensor	—	Multiple infrared-light beams cover some 5'-10 3/4" in height of the doors as they close to detect passengers or objects. The 3D sensor can also monitor the hall by expanding multiple infrared light beams.	√	√	√

■ OPERATIONAL AND SERVICE FEATURES

Feature	Abbreviation	Description	1C to 2C 2BC	3C to 4C ΣAI-22	3C to 8C ΣAI-2200C
Car Call Erase	FCC-P	If a wrong car button is pressed, it can be canceled by quickly pressing the same button again twice.	√	√	√
Landing Open	LO	Doors start opening right before the car has completely stopped at a floor.	√	√	√
Non-Service Temporary Release for Car Call - Card Reader Type	NSCR-C	To enhance security, car calls for desired floors can be registered only by placing a card over a card reader. This function is automatically deactivated during emergency operations.	√	√	√
Non-service to Specific Floors — Car Button Type	NS-CB	To enhance security, service to desired floors can be set to disable using the car operating panel. This function is automatically deactivated during emergency operations.	√	√	√
Non-service to Specific Floors — Switch Type	NS	To enhance security, service to desired floors can be set to disable using a manual switch. This function is automatically deactivated during emergency operations.	√ #1	√	√
Out-of-service-remote	RCS	With a key switch on the supervisory panel, etc., a car can be called to a specified floor after responding to all car calls, and then automatically be taken out of service.	√	√	√
Secret Call Service	SCS-B	To enhance security, car calls for desired floors can be registered only by entering secret codes using the car buttons on the car operating panel. This function is automatically deactivated during emergency operations.	√	√	√
Regenerative Converter	PCNV	For energy conservation, power regenerated by a traction machine can be used by other electrical systems in the building.	√	√	√

■ GROUP CONTROL FEATURES

Feature	Abbreviation	Description	1C to 2C 2BC	3C to 4C ΣAI-22	3C to 8C ΣAI-2200C
Bank-separation Operation	BSO	Hall buttons and the cars called by each button can be divided into several groups for independent group control operation to serve special needs or different floors.	—	√	√
Closest-car Priority Service	CNPS	A function to give priority allocation to the car closest to the floor where a hall call button has been pressed, or to reverse the closing doors of the car closest to the pressed hall call button on that floor. (Cannot be combined with Hall Position Indicators.)	—	√ #2	√
Congested-floor Service	CFS	The timing of car allocation and the number of cars to be allocated to floors where meeting rooms or ballrooms exist and the traffic intensifies for short periods of time are controlled according to the detected traffic density data for those floors.	—	√	√
Destination Oriented Allocation System	DOAS	When a passenger enters a destination floor at a hall, the hall operating panel indicates which car will serve the floor. The passenger does not need to press a button in the car. Dispersing passengers by destination prevents congestion in the cars and minimizes waiting and traveling time. (Cannot be combined with some features. Please consult your local sales office for details.)	—	—	√ #3
Down Peak Service	DPS	Controls the number of cars to be allocated and the timing of car allocation in order to meet increased demands for downward travel during office leaving time, hotel check-out time, etc. to minimize passenger waiting time.	—	√	√
Energy Saving Operation-Number of Cars	ESO-N	To save energy, the number of service cars is automatically reduced to some extent but not so much as to adversely affect passenger waiting time.	—	√	√

■ GROUP CONTROL FEATURES

Feature	Abbreviation	Description	1C to 2C 2BC	3C to 4C ΣAI-22	3C to 8C ΣAI-2200C
Forced Floor Stop	FFS	All cars in a bank automatically make a stop at a predetermined floor on every trip without being called.	√	√	√
Intense Up Peak	IUP	To maximize transport efficiency, an elevator bank is divided into two groups of cars to serve upper and lower floors separately during up peak. In addition, the number of cars to be allocated, the timing of car allocation to the lobby floor, the timing of door closing, etc., are controlled based on predicted traffic data.	—	—	√
Light-load Car Priority Service	UCPS	When traffic is light, empty or lightly loaded, cars are given higher priority to respond to hall calls in order to minimize passenger travel time. (Cannot be combined with Hall Position Indicators.)	—	√ #2	√
Lunchtime Service	LTS	During the first half of lunchtime, calls for a restaurant floor are served with higher priority, and during the latter half, the number of cars allocated to the restaurant floor, the allocation timing for each car and the door opening and closing timing are all controlled based on predicted data.	—	√	√
Main Floor Changeover Operation	TFS	This feature is effective for buildings with two main floors. The floor designated as the "Main floor" in a group control operation can be changed as necessary using a manual switch.	√	√	√
Main Floor Parking	MFP	An available car always parks on the main floor with the doors open to reduce passenger waiting time.	√	√	√
Special Car Priority Service	SCPS	Special cars, such as observation elevators and elevators with basement service, are given higher priority to respond to hall calls. (Cannot be combined with Hall Position Indicators.)	—	√ #2	√
Special Floor Priority Service	SFPS	Special floors, such as floors with VIP rooms or executive rooms, are given higher priority for car allocation when a call is made on those floors. (Cannot be combined with Hall Position Indicators.)	—	√ #2	√
Up Peak Service	UPS	Controls the number of cars to be allocated to the lobby floor, as well as the car allocation timing, in order to meet increased demands for upward travel from the lobby floor during office starting time, hotel check-in time, etc., and minimize passenger waiting time.	—	√	√
Swing Service	SWSV	A car is temporarily split from the group to work as a single car. This dedicates one car to mail deliveries or facility maintenance through certain parts of the day. The swing car is operated from an inconspicuous riser of pushbuttons mounted in the doors jamb.	√	√	√

■ SIGNAL AND DISPLAY FEATURES

Feature	Abbreviation	Description	1C to 2C 2BC	3C to 4C ΣAI-22	3C to 8C ΣAI-2200C
Car Arrival Chime-Hall	AECH	Electronic chimes that sound to indicate that a car will soon arrive. (The chimes are mounted in each hall.)	√	√	√ #4
Immediate Prediction Indication	AIL	When a passenger has registered a hall call, the best car to respond to that call is immediately selected, the corresponding hall lantern illuminates and a chime sounds once to indicate which doors will open.	—	—	√
Second Car Prediction	TCP	When a hall is crowded to the extent that one car cannot accommodate all waiting passengers, the hall lantern will light up to indicate the next car to serve the hall.	—	—	√
Voice Guidance System	AAN-G	Information on elevator service such as the current floor or service direction that is heard by the passengers inside a car. (Voice guidance available only in English.)	√	√	√

Notes: – = Not applicable †= Not applicable to 1C-2BC
#1: When 2C-2BC, please consult your local sales office for lead times and details.
#2: Please consult your local sales office for lead times and details.
#3: DOAS cannot be combined with BSO, IUP, UPS, TFS, FSAT, FCC-A, DKO-TB or TCP feature.
#4: AECH is standard feature when 3-8 car AI-2200C is applied.

BASIC SPECIFICATIONS

For passenger CAPACITY: 2000lbs ~ 4000lbs

Capacity, Rated Speed, Door Type, Car Inside & Hoistway Dimensions*1

<Rated Speed 200fpm to 500fpm>

Opening	Rated speed (fpm)	Capacity (lbs)	Door type*2	CWT Location	Car inside clear dimensions		Entrance width JJ (ft./in.)	Minimum hoistway dimensions*3	
					Width (ft./in.)	Depth (ft./in.)		AH: Width (ft./in.)*4	BH: Depth (ft./in.)*7
Front	200 350	2000	SS	Rear	5'-8"	4'-3 3/4"	3'-0"	7'-6"	6'-11"
	200	2500	SS or CO		6'-8"	4'-8 3/4"	3'-6"	8'-6"	7'-4"
	350	3000				5'-4 3/4"			8'-0"
	400 500	3500				5'-8 3/16"			7'-11 1/4"
Front & Rear				Side				9'-7"	
Front	200 350	4000	CO	Rear	7'-8"	5'-4 3/4"	4'-0"	9'-7"	8'-0"

<Rated Speed 200fpm and 350fpm>

Opening	Capacity (lbs)	Minimum hoistway dimensions*3					
		Rated speed					
		200fpm			350fpm		
		PD (ft./in.)*5,7	OH*6 (ft./in.)		PD (ft./in.)*5, 7	OH*6 (ft./in.)	
			Canopy height 8'-0"	Canopy height 9'-6"		Canopy height 8'-0"	Canopy height 9'-6"
Front	2000	5'-5 1/2"	14'-3"	15'-8 11/16"	5'-11 1/2"	14'-6"	15'-11 11/16"
	2500						
	3000						
Front & Rear	3500						
Front	4000	5'-8"	15'-1"	16'-6 11/16"	6'-1"	15'-5"	16'-10 11/16"

<Rated Speed 400fpm and 500fpm>

Opening	Capacity (lbs)	Minimum hoistway dimensions*3					
		Rated speed					
		400fpm			500fpm		
		PD (ft./in.)*5, 7	OH*6, 8 (ft./in.)		PD (ft./in.)*5, 7	OH*6, 8 (ft./in.)	
			Canopy height 8'-0"	Canopy height 9'-6"		Canopy height 8'-0"	Canopy height 9'-6"
Front	2500	6'-3"	15'-3"	16'-8 11/16"	7'-5"	16'-1"	17'-6 11/16"
	3000						
Front & Rear	3500	6'-5"			7'-6 1/2"		

Notes
*1. The contents of these tables are standard specifications. They are based on ASME A17.1 and applicable to both seismic and non-seismic zones. Please consult your local sales office for other specifications. (Email: EEDSALES@meus.mea.com)
*2. SS: Single-Slide door, CO: Center-Open doors
*3. Hoistway dimensions (AH, BH, PD, OH) are for standard specifications.
*4. The AH dimensions indicate for one car. For AH dimensions of 2 and 3 car, please refer to left table. AU dimension in 2 and 3 car layout is same as AH of 1 car. These are values after waterproofing and do not include plumb tolerance.
*5. Pit depth in this drawing is obtained when floor recess is 3/4". When floor recess is greater than 3/4", extend pit depth as well. Max. floor recess is 1 1/4".
*6. The minimum OH dimensions are obtained on condition that:
A. Canopy height = 8'-0"
B. OH dimensions does not include the hoisting beams.
C. Please consult your structural engineer for hoisting beam sizing (typically a 6" to 8" beam plus 2" gap on top of the beam).
*7. If occupied space below hoistway is provided, required hoistway dimensions will be changed. Please consult your local sales office for details.
*8. For California projects, please add 2" to OH dimensions shown in the table above for elevator travel between 196'-10" and 262'-5".

Specifications

Rated Speed		200fpm	350fpm	400fpm	500fpm
Maximum number of stops		10		24	
Maximum travel (ft.)	2000 (lbs)	75'-0"	98'-5"	-	
	2500~3500 (lbs)			262'-5"	
	4000 (lbs)	196'-10"		-	
Minimum floor height (ft.)		8'-11" *9			

For travel greater than shown above, please consult your local sales office or EEDSALES@meus.mea.com.

AH dimension for 2 and 3 Car

Opening	Capacity (lbs)	AH dimension (ft./in.)	
		2 Car	3 Car
Front	2000	15'-4"	23'-2"
	2500	17'-4"	26'-2"
	3000		
Front & Rear	3500	19'-6"	
Front	4000		29'-5"

Power Feeder Data for One Car*11

Rated speed (fpm)	Capacity (lbs)	Traction motor (HP)	Current at 480V*10		Power supply capacity (kVA)	Heat emission of control panel (BTU/hr)
			FLU (A)	FLAcc (A)		
200	2000	7.5	12	21	7	2730
	2500	9.5	15	26	8	3240
	3000	11.9	18	30	9	3750
	3500	13.3	20	35	10	4270
	4000	16.1	23	40	12	4780
350	2000	13.0	20	35	10	4270
	2500	17.4	25	43	13	5120
	3000	20.1	30	52	15	5970
	3500	24.1	34	60	17	7000
	4000	26.8	39	69	19	8360
400	2500	18.8	28	49	14	7850
	3000	22.8	34	59	17	9040
	3500	26.8	39	69	19	10240
500	2500	24.1	35	61	17	9380
	3000	28.2	42	73	21	10920
	3500	33.5	48	85	24	12450

Notes
*9. Some of specifications require more than the value 8'-11" as a minimum height. Please consult your local sales office if floor height is less than 8'-11".
*10. If power supply voltage is other than 480V, FLU and FLAcc current are obtained by the following formulas.
FLU, FLAcc current (A) at E = (Current at 480V) x (480 / E) (E: Power supply voltage (V))
*11. Start / hour (time) is as follows.
Rated speed 200fpm: 120 times
Rated speed 350fpm: 150 times
Rated speed 400 and 500fpm: 180 times

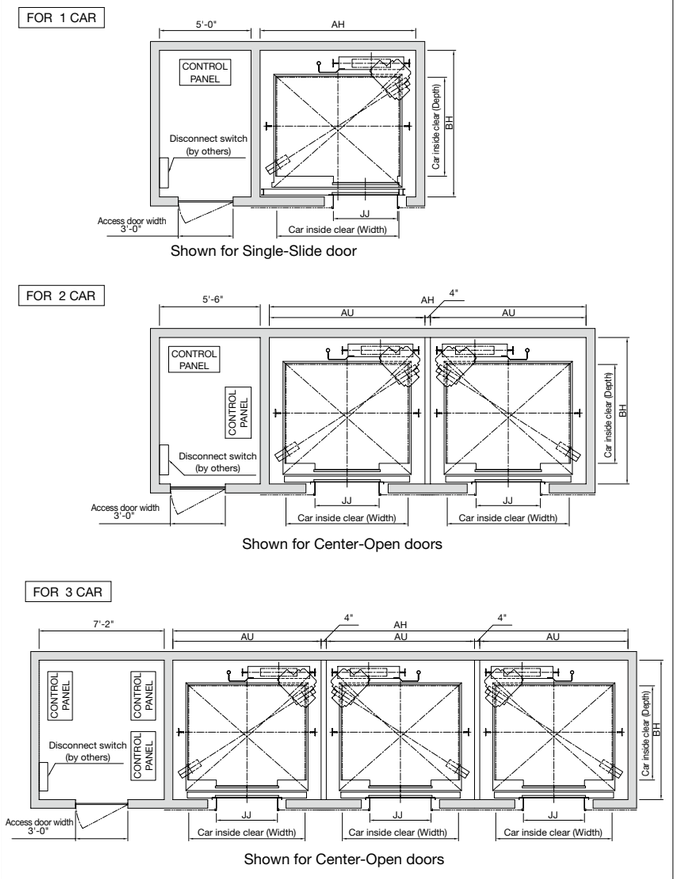
BASIC LAYOUTS

DIAMOND TRAC

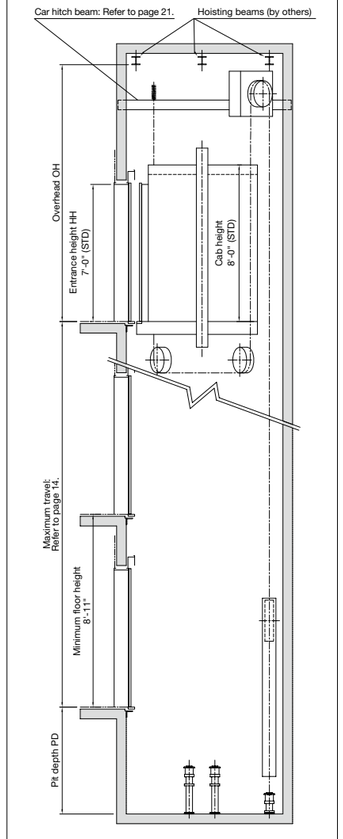
For passenger | CAPACITY: 2000lbs ~ 4000lbs

Front Opening

Hoistway Plan (example)



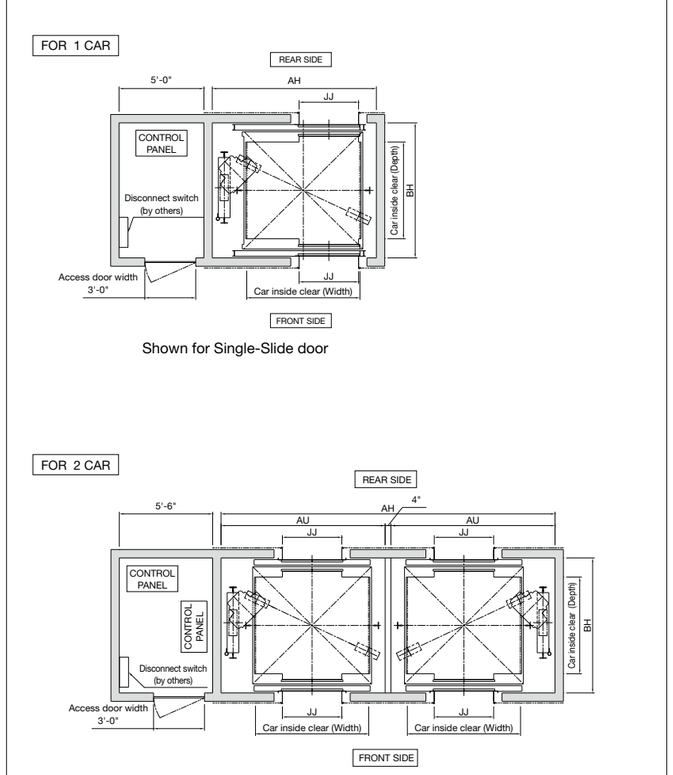
Hoistway Section



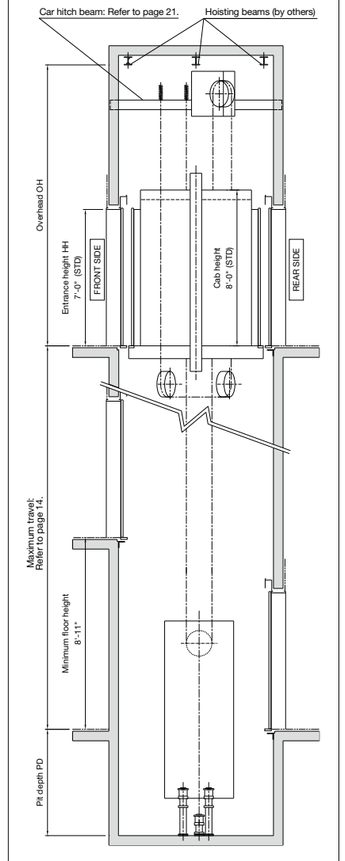
For passenger | CAPACITY: 3500lbs

Front & Rear Opening

Hoistway Plan



Hoistway Section



BASIC SPECIFICATIONS

For service | **CAPACITY: 4000lbs ~ 5000lbs**

Capacity, Rated Speed, Door Type, Car Inside & Hoistway Dimensions*1

<Rated Speed 200fpm and 350fpm>

Configu-ration	Opening	Capacity (lbs)	Door type*2	CWT Location	Car inside clear dimensions		Entrance width JJ (ft./in.)	Minimum hoistway dimensions*3	
					Width (ft./in.)	Depth (ft./in.)		AH: Width (ft./in.)*4,7	BH: Depth (ft./in.)*7
Service	Front	4000	2S	Side	5'-8"	7'-3 1/4"	4'-0"	8'-7 1/2"	9'-1"
		4500				7'-11 1/4"			9'-8"
		5000				8'-6 1/4"			10'-3"
	Front & Rear	4500			5'-10"	8'-4 1/4"	4'-6"	8'-9 1/2"	10'-1"
		5000			5'-8"	8'-0"	4'-0"	8'-7 1/2"	10'-8 3/4"
						8'-7"			11'-3 3/4"
					5'-10"	8'-5"	4'-6"	8'-9 1/2"	11'-1 3/4"

<Rated Speed 200fpm and 350fpm>

Configu-ration	Opening	Capacity (lbs)	Minimum hoistway dimensions*3					
			Rated speed					
			200fpm			350fpm		
			PD (ft./in.)*5,7	OH*6 (ft./in.)		PD (ft./in.)*5,7	OH*6 (ft./in.)	
				Canopy height 8'-0"	Canopy height 9'-6"		Canopy height 8'-0"	Canopy height 9'-6"
Service	Front	4000	5'-8"	15'-1"	16'-6 11/16"	6'-1"	15'-5"	16'-10 11/16"
		4500						
		5000	6'-1"			6'-2"*8		
	Front & Rear	4500	5'-8"	15'-2"	16'-7 11/16"	6'-1"	15'-10"	17'-3 11/16"
		5000	6'-1"					

Notes
*1. The contents of these tables are standard specifications. They are based on ASME A17.1 and applicable to both seismic and non-seismic zones.
Please consult your local sales office for other specifications. (Email: EEDSALES@meus.mea.com)
*2. 2S: 2-Speed side-open doors
*3. Hoistway dimensions (AH, BH, PD, OH) are for standard specifications.
*4. The AH dimensions indicate for one car. For AH dimensions of 2 and 3 car, please refer to left table.
AU dimension in 2 and 3 car layout is same as AH of 1 car. These are values after waterproofing and do not include plumb tolerance.
*5. Pit depth in this drawing is obtained when floor recess is 3/4".
When floor recess is greater than 3/4", extend pit depth as well. Max. floor recess is 1 1/4".
*6. The minimum OH dimensions are obtained on condition that:
A. Canopy height = 8'-0"
B. OH dimensions does not include the hoisting beams.
C. Please consult your structural engineer for hoisting beam sizing (typically a 6" to 8" beam plus 2" gap on top of the beam).
*7. If occupied space below hoistway is provided, required hoistway dimensions will be changed. Please consult your local sales office for details.
*8. If the travel is below 98'-5", some reduction of pit depth is available. Please consult your local sales office for details.

Specifications

Rated speed	200fpm	350fpm
Maximum number of stops	24	
Maximum travel (ft.)	196'-10"	
Minimum floor height (ft.)	8'-11" *9	

For travel greater than shown above, please consult your local sales office or EEDSALES@meus.mea.com.

AH dimension for 2 and 3 Car

Configu-ration	Opening	Capacity (lbs)	Entrance width JJ (ft./in.)	AH dimension (ft./in.)	
				2 Car	3 Car
Service	Front	4000	4'-0"	17'-7"	26'-6 1/2"
	Front / Front & Rear	4500			
		5000			
		5000	4'-6"	17'-11"	27'-0 1/2"

Power Feeder Data for One Car*11

Rated speed (fpm)	Capacity (lbs)	Traction motor (HP)	Current at 480V*10		Power supply capacity (kVA)	Heat emission of control panel (BTU/hr)
			FLU (A)	FLAcc (A)		
200	4000	16.1	23	40	12	4780
	4500	17.4	26	45	13	5460
	5000	18.8	28	49	14	5970
350	4000	26.8	39	69	19	8360
	4500	29.5	43	77	22	9220
	5000	33.5	48	85	24	10240

Notes
*9. Some of specifications require more than the value 8'-11" as a minimum height.
Please consult your local sales office if floor height is less than 8'-11".
*10. If power supply voltage is other than 480V, FLU and FLAcc current are obtained by the following formulas.
FLU, FLAcc current (A) at E = (Current at 480V) x (480/ E) (E: Power supply voltage (V))
*11. Start / hour (time) is as follows.
Rated speed 200fpm: 120 times
Rated speed 350fpm: 150 times

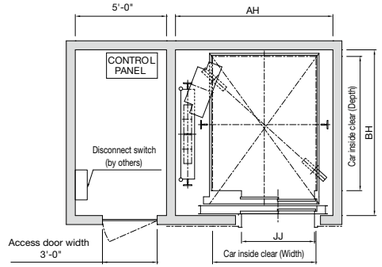
BASIC LAYOUTS

For service | **CAPACITY: 4000lbs ~ 5000lbs**

Front Opening

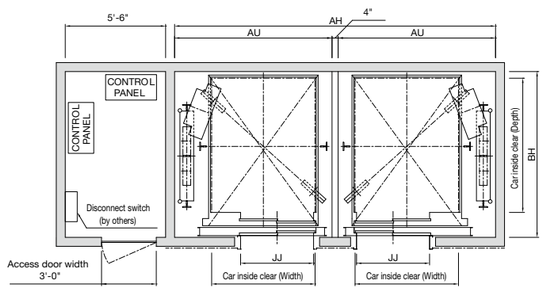
Hoistway Plan (example)

FOR 1 CAR



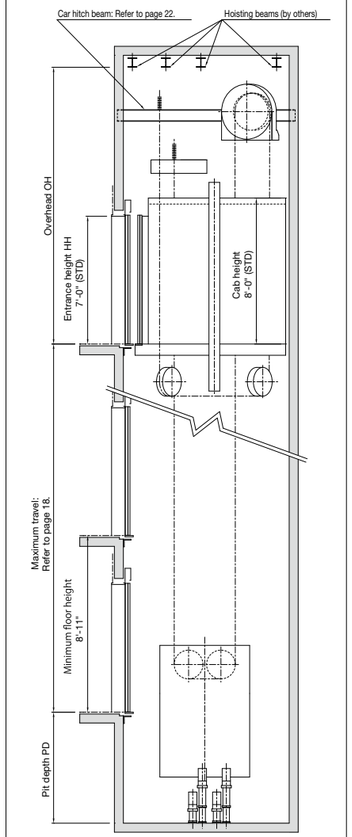
Shown for 2-Speed side-open doors

FOR 2 CAR



Shown for 2-Speed side-open doors

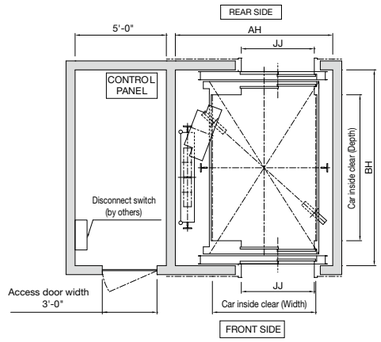
Hoistway Section



Front & Rear Opening

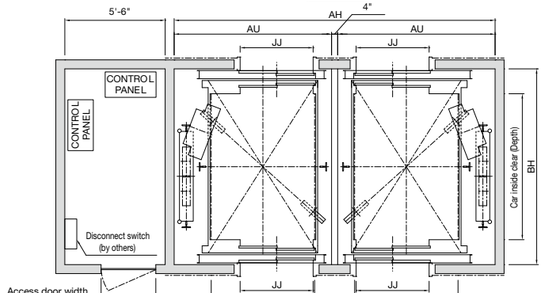
Hoistway Plan (example)

FOR 1 CAR



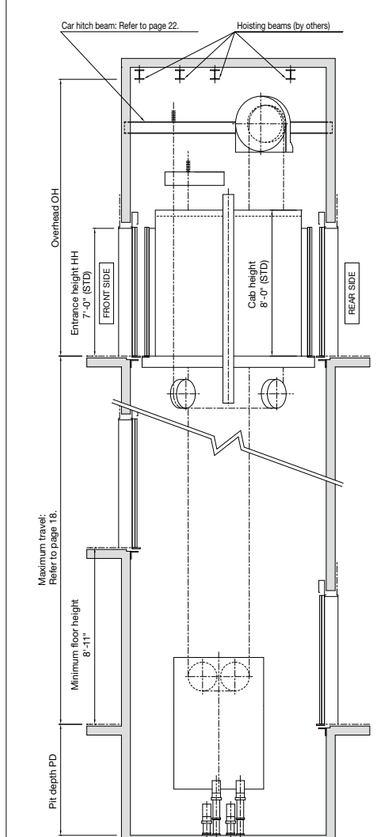
Shown for 2-Speed side-open doors

FOR 2 CAR



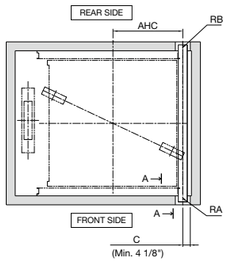
Shown for 2-Speed side-open doors

Hoistway Section

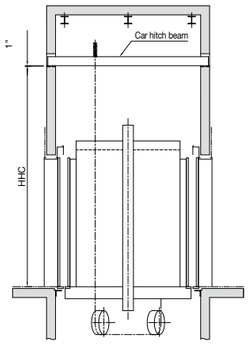


CAR HITCH BEAM

For passenger — CAPACITY: 2000lbs ~ 4000lbs



Hoistway plan



Hoistway section

Height of through hole for car hitch beam [HHC]

Rated speed (fpm)	HHC*1, 2 (ft./in.) Capacity	
	2000lbs~3500lbs	4000lbs
200	11'-10 1/8"	12'-4 7/8"
350	12'-1 1/8"	12'-8 15/16"
400	12'-10 1/8"	-
500	13'-7 1/8"	

*1: The HHC dimensions are obtained when canopy height = 8'-0".
*2: For California projects, please add 2" to HHC dimensions shown in the table above for elevator travel between 196'-10" and 262'-5".

Reaction loads <Rated Speed 200fpm and 350fpm>

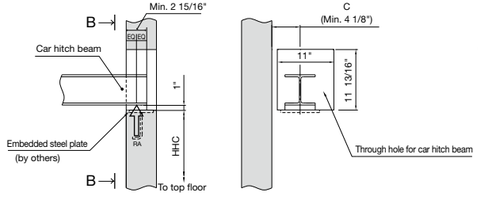
Opening	Capacity (lbs)	RA (lbs)		RB (lbs)	
		Static	Dynamic	Static	Dynamic
Front	2000	3200	6300	900	1800
	2500	3900	7500	1200	2300
	3000	4100	7900		
	3500	4500	8800		
Front & Rear	3500	3900	7700	1600	3000
Front	4000	5000	9900		3400

<Rated Speed 400fpm and 500fpm>

Opening	Capacity (lbs)	RA (lbs)		RB (lbs)	
		Static	Dynamic	Static	Dynamic
Front	2500	3900	7700	1200	2300
	3000	4300	8600		
	3500	4500	9300		
Front & Rear	3500	4100	7900	1600	3200

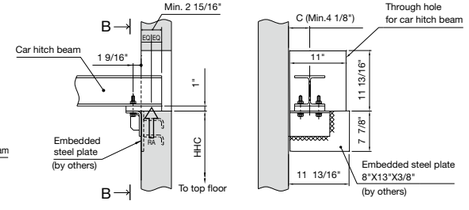
For Concrete and Masonry Wall Construction

C≧5 1/2"



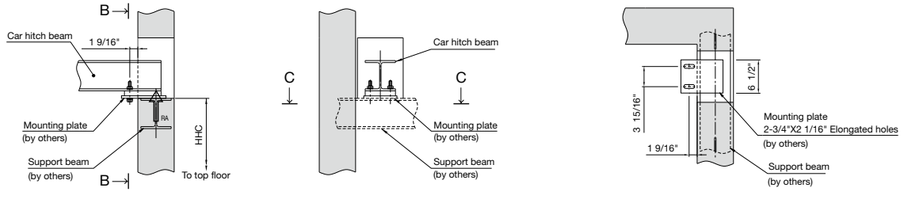
Section A-A　Section B-B

C < 5 1/2"



Section A-A　Section B-B

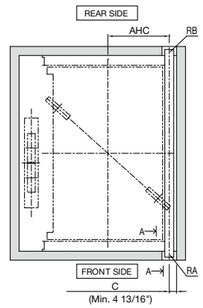
For Dry Wall Construction



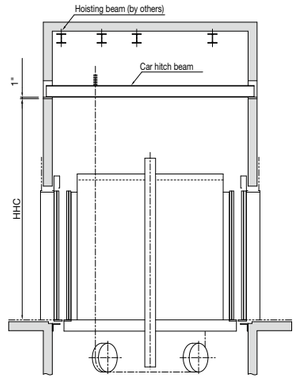
Section A-A　Section B-B　Section C-C

DIAMOND TRAC

For service — CAPACITY: 4000lbs ~ 5000lbs



Hoistway plan



Hoistway section

Height of through hole for car hitch beam [HHC]

Rated speed (fpm)	HHC*1 (ft./in.)
200	12'-4 7/8"
350	12'-8 15/16"

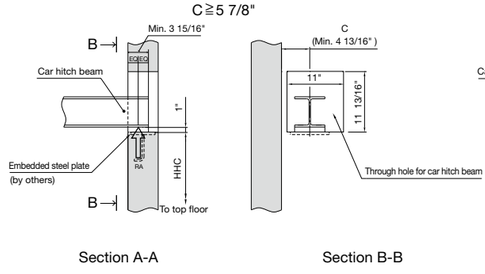
*1: The HHC dimensions are obtained when canopy height = 8'-0".

Reaction loads

Opening	Capacity (lbs)	CWT Location	RA (lbs)		RB (lbs)	
			Static	Dynamic	Static	Dynamic
Front	4000	Side	5000	9900	1600	3000
	4500		5200	10200	1400	2700
	5000		5900	11500	1800	3600
Front & Rear	4500		5000	9900	1600	3000
	5000		5900	11500	1800	3600

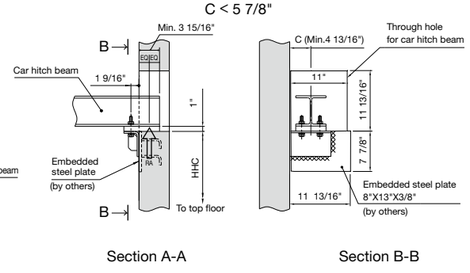
For Concrete and Masonry Wall Construction

C≧5 7/8"



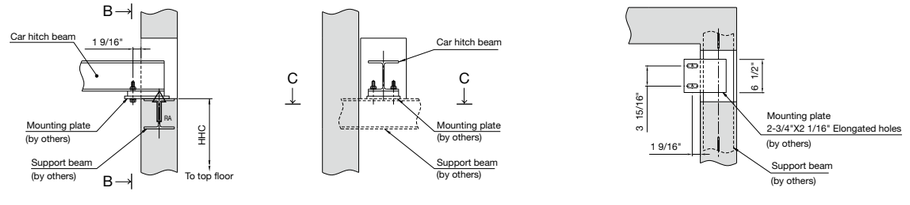
Section A-A　Section B-B

C < 5 7/8"



Section A-A　Section B-B

For Dry Wall Construction

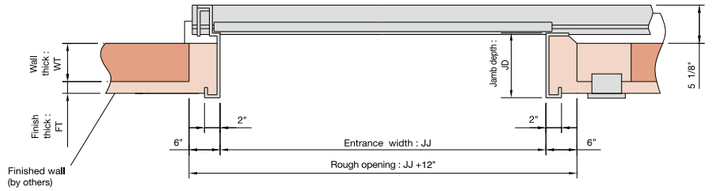


Section A-A　Section B-B　Section C-C

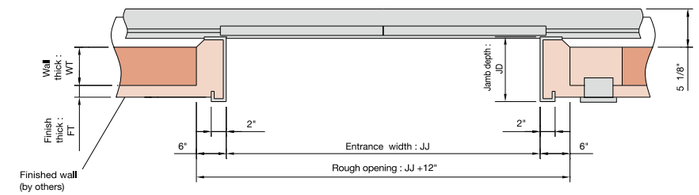
ENTRANCE LAYOUTS

For Concrete and Masonry Wall Construction

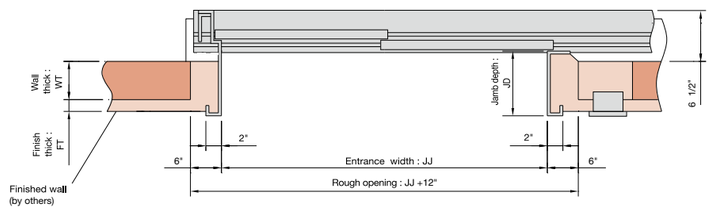
Single-Slide door
(section C-C)



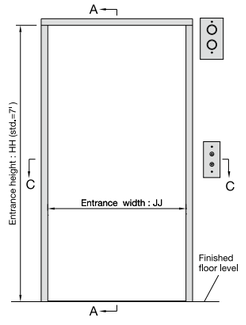
Center-Open doors
(section C-C)



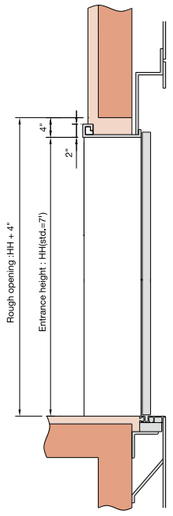
2-Speed side-open doors
(section C-C)



Without Transom panel

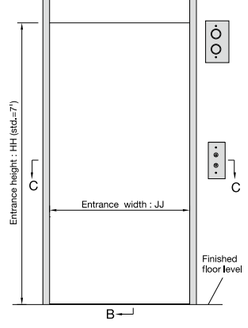


Hoistway entrance

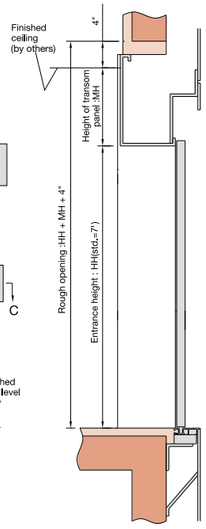


Door elevation
(section A-A)

With Transom panel



Hoistway entrance

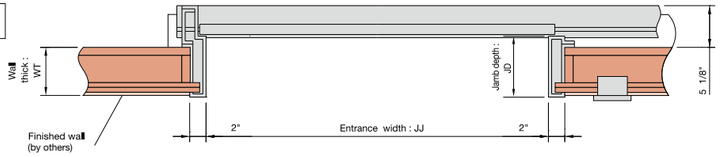


Door elevation
(section B-B)

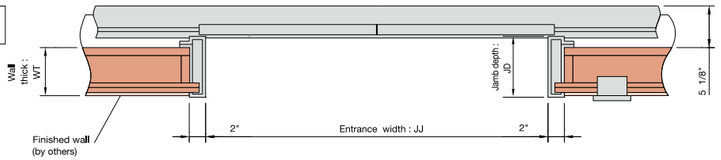
Building structure (by others)
Wall and floor finishing (by others)

For Dry Wall Construction

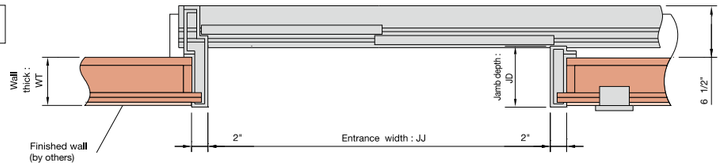
Single-Slide door
(section C-C)



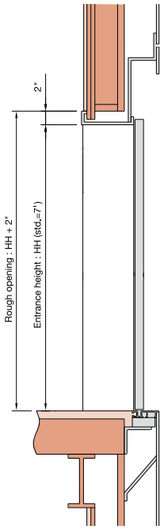
Center-Open doors
(section C-C)



2-Speed side-open doors
(section C-C)

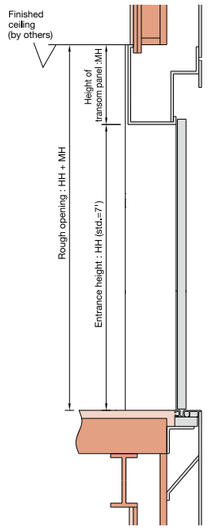


Without Transom panel



Door elevation
(section A-A)

With Transom panel



Door elevation
(section B-B)

Building structure (by others)
Wall and floor finishing (by others)

IMPORTANT INFORMATION ON ELEVATOR PLANNING

Work Not Included in Elevator Contract

The following items are excluded from Mitsubishi Electric's elevator installation work, and are therefore the responsibility of the building owner or general contractor:

- Architectural finishing of the walls and floors in the vicinity of the entrance hall, after installation has been completed.
- Construction of an illuminated, ventilated, and waterproofed elevator hoistway.
- A ladder to the elevator pit.
- Provisions for cutting the necessary openings and joints.
- Separate beams, when the hoistway dimensions markedly exceed the specifications, and intermediate beams when two or more elevators are installed.
- All other work related to building construction.
- 3-phase, horsepower rated, lockout type, fused disconnect or circuit breaker, including provision of 3-phase electrical service to elevators.
- Elevator group control disconnect switch, if applicable.
- Control room lighting and duplex outlets.
- Power source for seismic switch, if applicable.
- The laying of conduits and wiring between the elevator pit and the terminating point for the devices installed outside the hoistway, such as the emergency bell, intercom, monitoring and security devices, etc.
- The power consumed during installation work and test operations.
- Test provisions and subsequent alteration as required, eventual removal of the scaffolding as required by the elevator contractor, and any other protection of the work as may be required during the process.
- A suitable, locked space for the storage of elevator equipment and tools during elevator installation.
- The security system, such as a card reader, connected to Mitsubishi Electric's elevator controller, when supplied by the building owner or general contractor.
- Divider beams and structural attachment points for rail brackets are by others and will be located as needed on Mitsubishi Electric shop drawings.
- Temporary work platform overhead.
- Smoke detectors in the hoistway near the machines, as required by code.

* Work responsibilities in installation and construction shall be determined according to local laws. please consult your local sales office for details.

Elevator Site Requirements

- The temperature of the elevator hoistway and control panel room shall be above 23°F (-5°C) and below 104°F (40°C).
- The following conditions are required for maintaining elevator performance:
  a. The relative humidity shall be below 90% on a monthly average and below 95% on a daily average.
  b. Prevention shall be provided against icing and condensation occurring due to a rapid drop in the temperature in the elevator hoistway.
  c. The elevator hoistway shall be finished with mortar or other materials so as to prevent concrete dust.
- Voltage fluctuation shall be within a range of +5% to -10%.

Ordering Information

Please include the following information when ordering or requesting estimates:

- The desired number of units, speed and loading capacity
- The number of stops or number of floors to be served
- The total elevator travel and each floor-to-floor height
- Operation system
- Selected design and size of car
- Entrance design
- Signal equipment
- A sketch of the part of the building where the elevators are to be installed
- The voltage, number of phases and frequency of the power source for the motor and lighting

Contact your Mitsubishi Electric representative for more information.



State-of-the-Art Factories…
For the Environment. For Product Quality.

Mitsubishi Electric elevators and escalators are currently operating in approximately 90 countries around the globe. Built placing priority on safety first, our elevators, escalators and building system products are renowned for their excellent efficiency, energy savings and comfort. The technologies and skills cultivated at the Inazawa Works and 12 overseas manufacturing factories are utilized in a global network that provides sales, installation and maintenance in support of maintaining and improving product quality.
As a means of contributing to the realization of a sustainable society, we consciously consider the environment in business operations, proactively work to realize a low-carbon, recycling-based society, and promote the preservation of biodiversity.

ISO9001/14001 certification

Mitsubishi Electric Corporation Inazawa Works has acquired ISO 9001 certification from the International Organization for Standardization based on a review of quality management. The plant has also acquired environmental management system standard ISO 14001 certification.

ISO 9001
BUREAU VERITAS
Certification

ISO 14001
JACO
EC98J2017
UKAS MANAGEMENT SYSTEMS
051

eco Changes for a greener tomorrow

Eco Changes is the Mitsubishi Electric Group's environmental statement, and expresses the Group's stance on environmental management. Through a wide range of businesses, we are helping contribute to the realization of a sustainable society.

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