

# SmartScreen™

## Model BCY221X

### General

SmartScreen™ serves a simple supervisory system that monitors and controls building controllers (remote units) for equipment and facilities in a small to medium sized building. SmartScreen handles up to 99 remote units (CDGP\* / Infilex™ SC / Infilex™ FC).

SmartScreen controls remote units in connection as follows: Separate ON/OFF, monitoring of operating status and alarm, measurement, temperature/air volume setting, weekly/yearly scheduled operation, data collection, and meter-reading.

By adding the optional printer unit to SmartScreen, operation/status change record and alarm history can be printed.

Besides, optional Web-Adapter™ enables remote monitoring and control through the Web browser.

SmartScreen will thus assist building operators and owner for building operation.

\*CDGP: Compact Data Gathering Panel.



### Features

Simple and space-saving

- The compact and lightweight unit:  
300mm (W) × 300mm (H) × 112mm (H) (standard model)
- The simple system is equipped with basic functions which offer convenient building management to monitor ON/OFF, status, alarm, measurement points, and to set weekly/yearly schedule and calendar.
- CDGP, which manages ON/OFF, monitoring, meter-reading, and measuring, is also designed to fit inside a power panel or a distribution panel. Additional control panel is thus unnecessary.
- Slim-sized main unit (SmartScreen without panel: 50 mm thick) and printer unit can be installed in a standing panel cabinet such as fire control panel.

Easy engineering and installation

- Each remote unit is connected to SmartScreen with LAN cables.
- Supervisory system is served by connecting remote units and setting addresses. No complex adjustment is necessary.
- System configuration is simple because of no requirements except the connectable number of remote units.

Easy operation

- Graphical icons facilitates operation.
- Back-lit color LCD ensures visibility.

Light work for management

- SmartScreen automatically controls the remote units according to weekly schedule/yearly calendar programs.
- The printer unit (optional) prints equipment operation record, status change record, and alarm history.
- Data collection function allows to store measurement data in the CompactFlash® memory and to edit the stored data using general software applications.
- Meter reading (optional program) facilitates to monthly manage the totalized points.
- Management names (remote unit and point names) shown on the display can be modified via Windows® Hyperterminal on a standard computer.

High accessibility

- Web-Adapter allows you to remotely monitor and operate your SmartScreen through the Web-browser in your standard PC.

Multi-languages support (selectable by model numbers)

- Language viewed in the operator interface is selectable among Japanese, English, Chinese, Taiwanese, and Korean with model numbers.

**System Configuration**

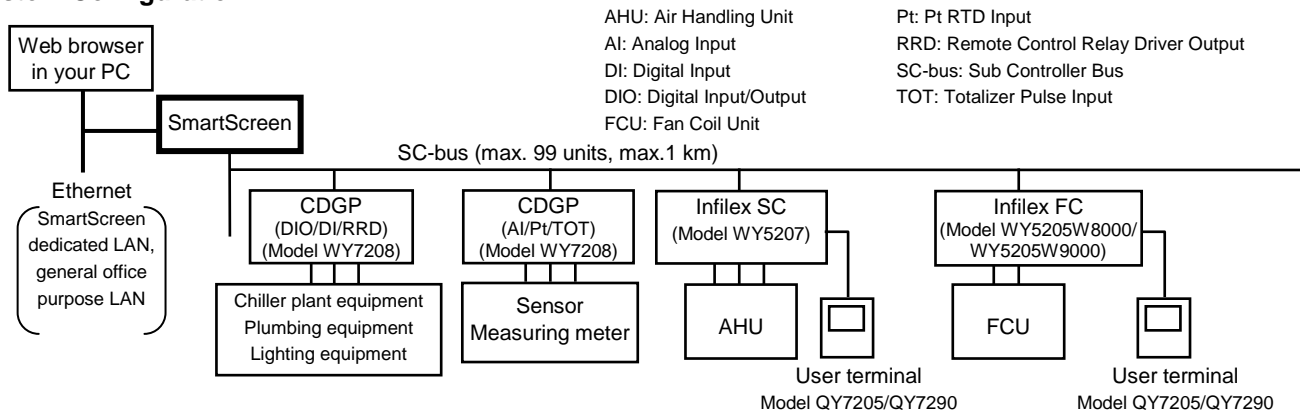


Figure 1. System configuration example

**Model Numbers (main unit)**

Model numbers					Descriptions
BCY221					SmartScreen base model number
	0				Language: Japanese
	1				Language: English
	2				Language: Chinese
	3				Language: Taiwanese
	4				Language: Korean
		0W2			Main unit with panel: Main unit installed on the panel (W) 300 mm × (H) 300 mm × (D) 112 mm, power supply: 100 to 240 V AC, 50/60 Hz
		1D2			Main unit without panel: Main unit only (W) 204 mm × (H) 144 mm × (D) 50 mm, power supply: 24 V DC
		2W2			Main unit with panel: Main unit installed on the panel, with Web-Adapter inside (W) 300 mm × (H) 300 mm × (D) 112 mm, power supply: 100 to 240 V AC, 50/60 Hz
			0		Fixed
			0		Without meter-reading program
			1		With meter-reading program
			0		Without data collection program
			1		With data collection program
				1	Accessories: 128 MB CompactFlash® memory, CompactFlash® adapter

Notes:

- \* Order the application software for remote data collection (Part No. 83163715-X02) separately.
- \* Use CompactFlash memory supplied with the SmartScreen. This memory is also available separately from the SmartScreen (Part No. 83164897-002). With another CompactFlash memory (commercial product), SmartScreen operation is not assured.

**Safety Instructions**

Please read instructions carefully and use the product as specified in this manual. Be sure to keep this manual near by for ready reference.

**Usage Restrictions**

This product is targeted for general air conditioning. Do not use this product in a situation where human life may be affected. If this product is used in a clean room or a place where reliability or control accuracy is particularly required, please contact Yamatake's sales representative. Yamatake Corporation will not bear any responsibility for the results produced by the operators.

**⚠ CAUTION**

- ❗ Installation and wiring must be performed by qualified personnel in accordance with all applicable safety standards.
- ❗ This product must be operated within its operating ranges specified in this manual. Failure to comply will cause equipment damages.
- ❗ This product must be operated under the operating conditions (power, temperature, humidity, vibration, shock, installation position, atmospheric condition, etc) specified in this manual to prevent equipment damages.

Trademark information:

SmartScreen and Web-Adapter are trademarks or registered trademarks of Yamatake Corporation in Japan or in other countries.  
 CompactFlash is a U.S. registered trademark of SanDisk Corporation.  
 Ethernet is a U.S. registered trademark of Xerox Corporation.  
 Microsoft and Windows are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.

## Optional Part Numbers

Auxiliary devices shown below are optional. In addition to the SmartScreen LCD unit, order your necessary auxiliary device(s).

### Printer unit

Part number	Description
83161238-101	Printer unit with panel and cable for SmartScreen connection Power supply: 100 to 240 V AC, 50/60 Hz (50 VA) Cable length: 0.7 m for communication / 0.4 m for power supply
83161239-101	Printer unit without panel and cable for SmartScreen connection Power supply: 5 V DC (30 W) Cable length: 0.7 m for communication / 0.4 m for power supply
83161239-102	Printer unit without panel and cable for SmartScreen connection Power supply: 5 V DC (30 W) Cable length: 0.7 m for communication / 2.0 m for power supply

### Power supply unit

Part number	Type	Input	Output
83162593-002	Power supply unit for the main unit without panel (DIN-rail mounting)	200 V AC to 240 V AC	24 V DC
83162593-102	Power supply unit for the printer unit without panel (DIN-rail mounting)	200 V AC to 240 V AC	5 V DC
83162593-001	Power supply unit for the main unit without panel (DIN-rail mounting)	100 V AC to 120 V AC	24 V DC
83162593-101	Power supply unit for the printer unit without panel (DIN-rail mounting)	100 V AC to 120 V AC	5 V DC

\* Note:

SmartScreen main unit/printer unit without panel requires the above power supply unit.

### Web remote control unit (Web-Adapter™)

Part number	Description
83162756	Web-Adapter base model number.
-201	Language: Japanese
-202	Language: English
-203	Language: Chinese
-204	Language: Taiwanese
-205	Language: Korean

Notes:

- \* Web-Adapter is a personal Web-server to browse information SmartScreen provides. Power supply for Web-Adapter is required separately from SmartScreen.
- \* Web-Adapter (above) is additionally required to remotely control SmartScreen without Web-Adapter.

## Hardware Specifications

### SmartScreen

(1/2)

Items		Specifications	
System	Rated power supply	Main unit with panel	100 to 240 V AC (85 to 264 V AC), 50/60 Hz
		Main unit without panel	24 V DC $\pm$ 10%
	Power consumption	Main unit with panel	Max. 66 VA
		Main unit without panel	Max. 21 W
	Grounding		Single grounding with 100 $\Omega$ or lower ground resistance
	Ambient conditions		5 to 40 °C, 20 to 80 %RH (non-condensing)
	Battery backup for power failure		Backup time: 48 hours (data memory, schedule programmed operation) Battery: Lithium battery
	Dimension	Main unit with panel	300 mm (W) $\times$ 300 mm (H) $\times$ 112 mm (D)
		Main unit without panel	204 mm (W) $\times$ 144 mm (H) $\times$ 50 mm (D)
	Weight	Main unit with panel	5.1 kg
Main unit without panel		1.0 kg	
Color		Bezel: Equivalent to Munsell 5.2 Y 7.9 / 1.0	
Display	Type	Back-lit color LCD (5.7 inch)	
	Languages	Japanese/English/Chinese/Taiwanese/Korean (selectable with model number) Graphic icons	
	Screen types	Icon indication on the window type screen (to display monitoring, setting, and scheduling, etc.)	
	Operation	Analog touchscreen	
	LED indication	Power supply, alarm, power failure shutdown, equipment running	
Communication with remote unit	Transmission type (line)/ speed	Voltage transmission (SC-bus) / 4800 bps	
	Transmission distance / number of units	Max. 1km / Max. 99 remote units connectable.	
	Connectable remote unit types	CDGP (DIO/DI/RRD/AI/TOT/Pt) / Inflex FC / Inflex SC	
	Cable	LAN cable (recommended LAN cable: compliant with EIA-568, category 3 or over, $\phi$ 0.5 mm $\times$ 4 P)	

Items		Specifications	
Connection to PC (DOS/V)	Cable	RS-232 cross cable serial port connection (female D-sub 9 pins)	
Data collection*1	CompactFlash® memory	128 MB CompactFlash memory	
Web remote control unit (Web-Adapter)*2	Ethernet®	10BASE-T × 1	
	TCP/IP	Adapter interface	1 session (socket communication)
		TELNET server	1 session (for setting)
	Dimension		110 mm (W) × 113 mm (H) × 27.6 mm (D)
Power supply capacity		5 V DC, 1.0 A	

## Notes:

- \*1 Use CompactFlash memory supplied with the SmartScreen. This memory is also available separately from the SmartScreen (Part No. 83164897-002). With third-party CompactFlash memory (commercial product), SmartScreen operation is not assured.
- \*2 Web-Adapter is installed in Model BCY221XW2 SmartScreen. To combine Web-Adapter with other SmartScreen models, additionally order optional Web-Adapter.

## Panel of the panel-installed model SmartScreen/printer unit

Item	Specification
Material	SECC-C (Electrolytic zinc-coated carbon steel sheets)
Thickness	Housing: 1.2 mm, door: 1.0 mm
Color	Equivalent to Munsell 6.1 Y 7.3 / 0.6

## Printer unit (optional)

Item	Specification	
Power supply	Printer unit with panel	100 to 240 V AC (85 to 264 V AC), 50/60 Hz
	Printer unit without panel	5 V DC
Power consumption	Printer unit with panel	Max. 50 VA
	Printer unit without panel	Max. 30 W
Dimensions	Printer unit with panel	300 mm (W) × 300 mm (H) × 102 mm (D)
	Printer unit without panel	102 mm (W) × 117 mm (H) × 66 mm (D)
Weight	Printer unit with panel	4.5 kg
	Printer unit without panel	0.3 kg
Printing method	Line thermal Black ink 48 characters per line (ANK conversion) Thermal paper roll (58 mm wide)	

## Wiring Specifications

Items	Input/output specifications	Wiring specification (recommended wires)	Length
SC-bus	Voltage transmission Speed: 4800 bps (with no redundancy)	LAN cable (compliant with EIA-568, category 3 or over, $\phi 0.5$ mm × 4 P)	1 km
Power supply cable	100 to 240 V AC, 50/60 Hz	JIS*1 VCT 2.0 mm <sup>2</sup>	—
DI input (Fire alarm input)	Potential free N.O. contact input (24 V DC, 5 mA)	JCS*2 CPEV 0.9 mm JIS CVV 1.25 mm <sup>2</sup>	50 m
DO output (Batch alarm output)	Potential free N.O. contact output (24 V DC, 100 mA)	JCS CPEV 0.9 mm JIS CVV 1.25 mm <sup>2</sup>	50 m
Ethernet	10BASE-T	LAN cable (compliant with EIA-568, category 3 or over, $\phi 0.5$ mm × 4 P)	100 m

## Notes:

- \*1 JIS: Japanese Industrial Standards
- \*2 JCS: Japanese Electric Wire and Cable Makers' Association Standards

## Input/output rating

Items	Specifications	Remarks
Batch alarm output	Potential free N.O. contact maintained output Contact rating: 24 V DC Applied current: 100 mA Batch alarm is output when alarm monitoring point tells alarm.	Terminals are provided on the back side of the main unit.
Fire alarm input	Potential free N.O. contact input or potential free transistor input Current: 5 mA DC Voltage: 24 V DC Fire alarm is input by contact/transistor that makes ON at fire event.	

## Software Specifications

### Individual ON/OFF and point monitoring function

- Turns on and off each equipment connected to, and monitors the operating status and the alarm.
- Monitors and measures the analog values such as: current, voltage, electric power, temperature, and humidity.
- Monitors and totalizes the value of the pulse inputs such as: gas, water, and electric power.

### Individual control function

- Changes the setpoint (temperature) and fan speed (L/M/H) of FCU
- Changes the setpoint (temperature) of AHU.

### List monitoring function

Monitors the points per type such as: ON/OFF (of AHU/FCU, lighting and general equipment), status, alarm, analog values to measure, and the values of the pulse inputs to totalize.

### Weekly scheduled operation function

Automatically turns on and off the general equipment, lighting, FCU/AHU according to the weekly scheduled timer. Master schedule allows to set the schedules for each day of the week. Also, executable schedule allows to set the special schedules, such as overtime working hours for the coming week. (Up to 40 schedules can be set.)

### Yearly calendar operation function

Allows you to set the schedules for holidays and special days with the yearly calendar. Even if the schedules are different for each tenant in a building, up to 40 schedules can be set.

### Event interlock function

Controls interlock ON/OFF with status change and alarm as a trigger. For example, equipment such as outdoor AHU, all heat exchanger, or chiller can be controlled by the status of FCU or AHU. The ON/OFF operation of lighting and AHU/FCU can be interlocked by an access signal (max. 40 systems, 16 input points per system, 8 output points per system).

### Power failure restoration control function

After the power restoration, restarts the equipment, AHU, and FCU to recover their status before the power failure.

### Batch stop for fire alarm

Stops all of the equipment, FCU and AHU with a fire alarm input. (CDGP points allow to select target equipment/AHU /FCU for this function.)

### Cooling/ heating switchover function

Allows you to changeover cooling/heating mode of FCU/AHU manually on operation screen or by an external contact input. (2 systems max. are set.)

### Meter-reading function and data output to PC (optional)

- Totalizes the measured meter-reading values per point. Also, regularly adds up the values for a month and displays the result data on the screen. (Max. 40 points)
- Outputs the monthly data (totalized meter-reading values for a month) to your PC via RS-232 cable. The output data in CSV format is editable using software applications such as Microsoft® Excel. The data contains system number, name, and reading of the previous totalized data and the totalized data two times before.

### Command/COS (change of status) history/alarm history display

Displays the history of the commands, changes of status, alarm event and recovery. 360 items max. are displayed. Items are deleted chronologically from the oldest when the items count more than 360.

### AI high/low limit monitoring function

- Alerts when an AI value exceeds the preset high/low limit.
- Transfers alarms to other facilities by combining with the event interlock function.

### Name change function

Changes the names of remote unit points and CDGP points shown on the screen, using a PC with RS-232 cable connection.

### Data collecting function (optional)

- Automatically and periodically (every 1/10/30/60 mins.) collects AI, TOT, DI, DO, PRA (parameter) points and saves them as CSV data in a 128 MB CompactFlash memory. (Max. 100 points)
- Up to 100 points of the data in the CompactFlash memory is editable using applications software such as Microsoft Excel.

### Record function (optional)

Prints out the desired information from the displayed history record list in combination with the optional printer unit.

### Remote control function (optional)

Allows you to control SmartScreen (point monitoring and operation, schedule change, history record management) with your PC (where Microsoft® Internet Explorer 4.0 or greater is installed) via Ethernet.

### Remote alarm signal function (optional)

Sends alarm event and recovery status to e-mail server. (Max. 6 addresses)

### Remote data collecting function

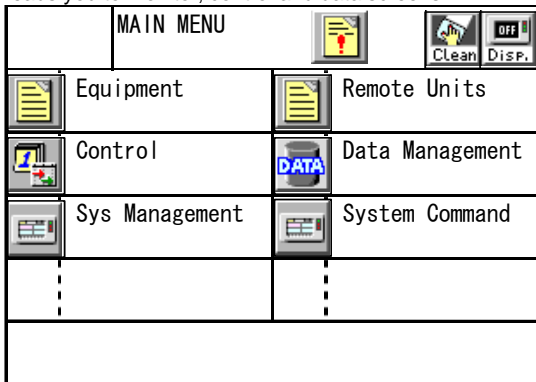
Allows a remote PC to collect AI, TOT, DI, DO, PRA points and history record (commands, COS, alarms). The collected data is saved in CSV format in hard disk. (Dedicated application software requires to be installed in your PC. SmartScreen data collecting function needs to be selected as well for this function.)



**Screen Examples**

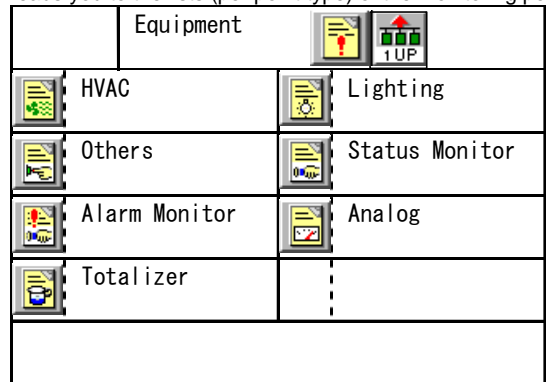
**1. Main Menu**

Leads you to monitor, control and data screens.



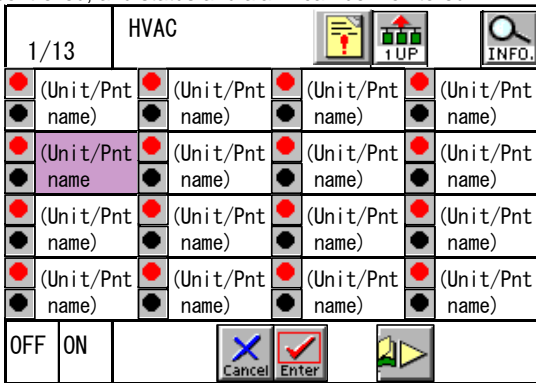
**2. Equipment List**

Leads you to the lists (per point type) of the monitoring points.



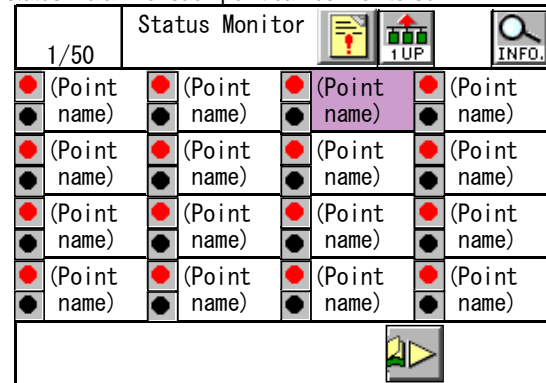
**3. HVAC List**

Displays the list of HVAC points (units). ON/OFF can be controlled, and status and alarm can be monitored.



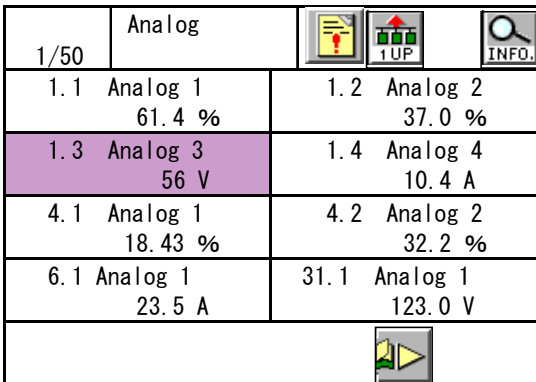
**4. Status Monitoring**

Displays the list of status and alarm points. Both the status and status + alarm of each point can be monitored.



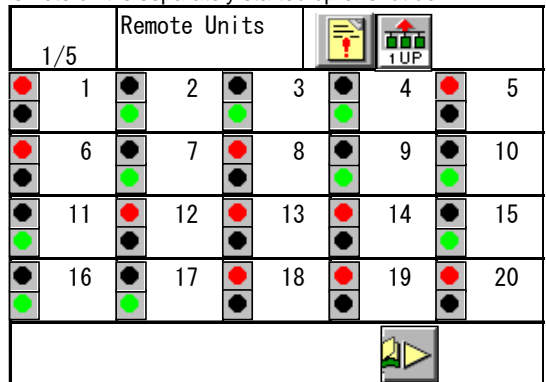
**5. Analog Point List**

Displays the list of analog measurement point.



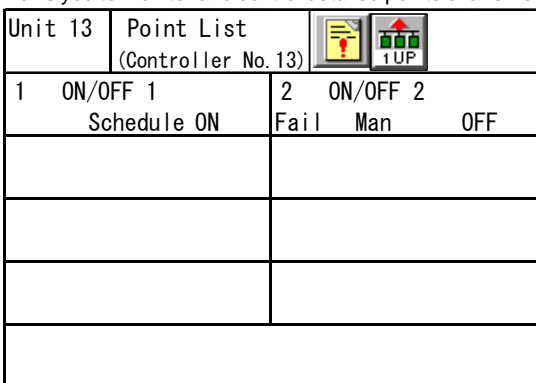
**6. Remote Units List**

Displays the list of remote units including FCU and AHU. Remote units are shown in the order of their address. Each remote unit is separately started up or shut down.



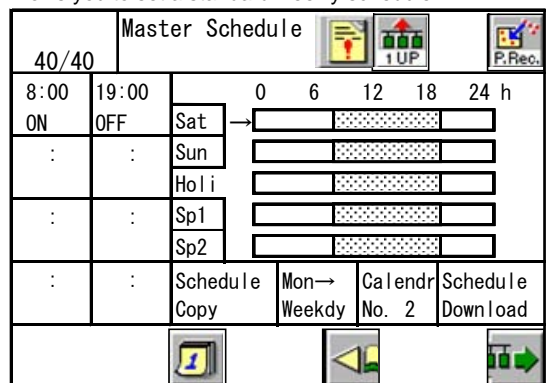
**7. Point List**

Allows you to monitor and control detailed points of a remote unit.









**8. Master Schedule**

Allows you to set a standard weekly schedule.









**9. Year Calendar**

Allows you to set the holidays and special days of the year.

1/40		Calendar							 	
Schedule Download		*98. 1								
Calendar Copy		Sun	Mon	Tue	Wen	Thu	Fri	Sat		
Week		4	5	6	7	8	9	10		
Holi		11	12	13	14	15	16	17		
Spe1		18	19	20	21	22	23	24		
Spe2		25	26	27	28	29	30	31		
										








**11. Data Collection Menu (optional)**

Displays the menu for data collection.

Data Collection		 	
	Write to PC Card		Detailed Setting
	Delete PC Card		Card Format







**10. History display**

Displays unit running status, status changes, and alarm history.

All History		 			
Alarm Return Unit 99		98- 1- 1 9:15		Alm Occurred Unit 99	
1 ON/OFF		Schedule ON		97-12-30 20:34	
Sys ON		97-12-29 11:21		1 ON/OFF	
Del					
					

**12. Data collection detail setting (optional)**

Allows you to set the details of the data collection.

3/3		Detailed Setting		 			
Group 9		DEL		Group 9 Cycle		10 Min	
Group 10		DEL		Group 10 Cycle		60 Min	
1 Min		10 Min		30 Min		60 Min	
							



Specifications are subject to change without notice.

**Yamatake Corporation**  
**Building Systems Company**

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