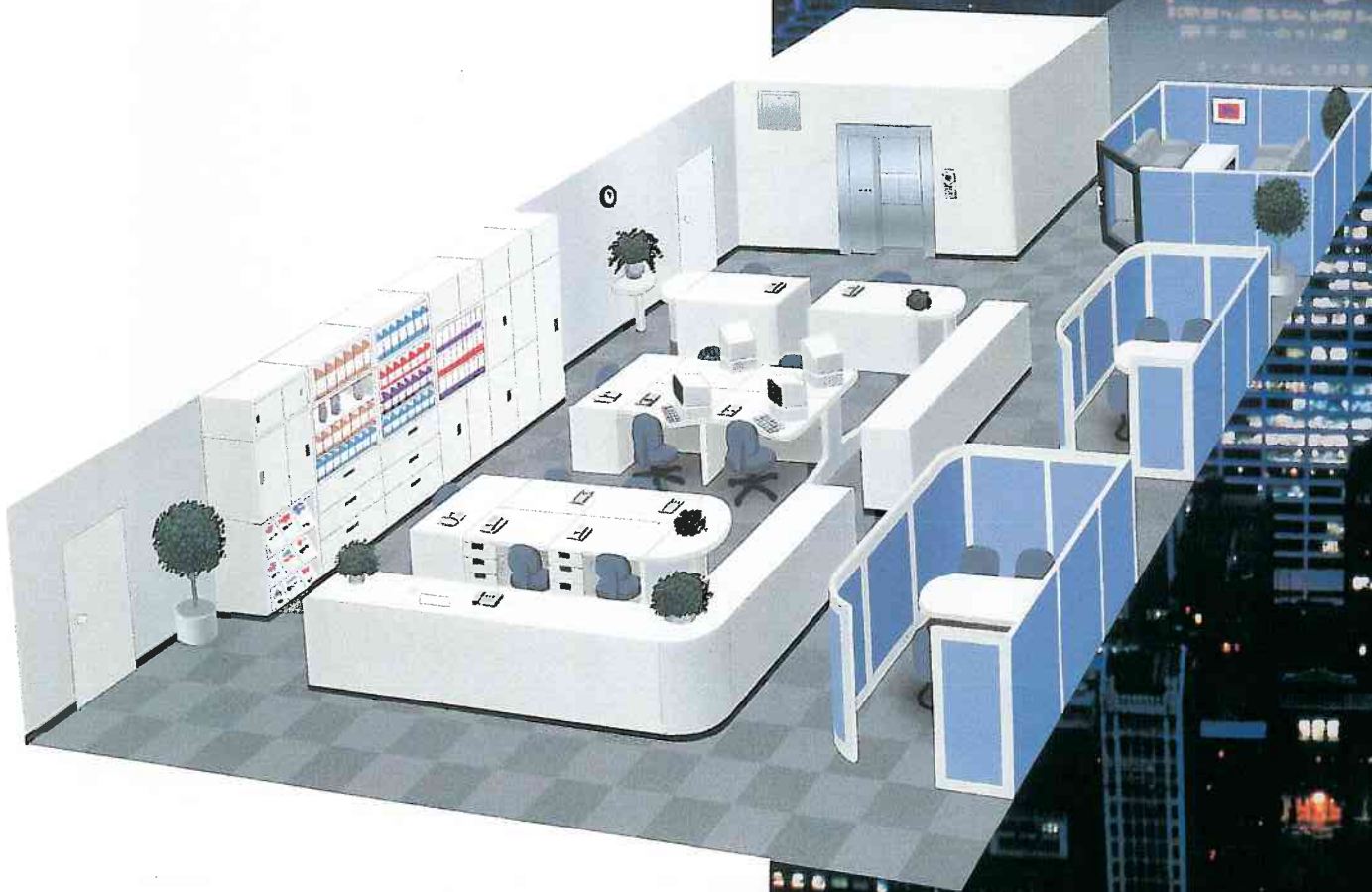




# PRE-FABRICATED VAULTS

MODULAR VAULTS ARE SO LIGHT IN WEIGHT THAT THEY CAN BE INSTALLED ON THE TOP FLOOR OF A SKYSCRAPER!

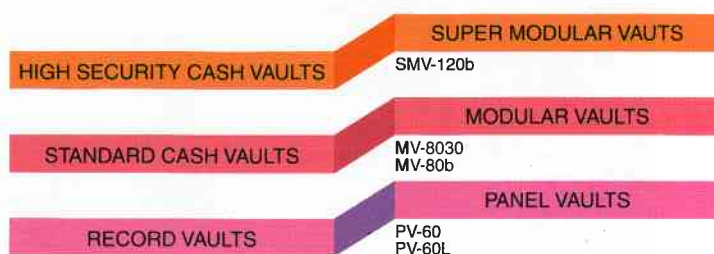


# PRE-FABRICATED VAULTS BY KUMAHIRA.

KUMAHIRA'S MODULAR VAULTS WEIGH UP TO 82% LESS THAN CONCRETE VAULTS AND PROVIDE U  
PRE-FABRICATED VAULTS ARE EASY TO INSTALL (NO CONCRETE MIXING AND, CONSEQUENTLY, NO  
AND ABLE TO DISASSEMBLE FOR EXPANSION OR REMOVAL.



## TYPES OF PRE-FABRICATED VAULTS



## CONSTRUCTION METHODS

All types of Kumahira's pre-fabricated vaults can either be erected as a free-standing vault or attached to the beams and columns of an existing structure.

# LIGHTWEIGHT, SAFE, EASILY ASSEMBLED.

P TO 2.5 TIMES THE INSIDE FLOOR SPACE.  
(MOISTURE PROBLEMS LATER ON)

## BURGLARY PROOF

Kumahira's pre-fabricated vaults panels were successfully tested against the hammerdrill and the oxy-acetylene blowtorch.

### ■ COMPARISON OF BURGLARY TEST SMV-120b



### 700mm thickness RC



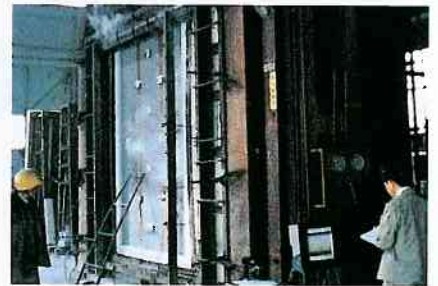
OXY-ACETYLENE TEST



HAMMERDRILL TEST

## FIRE PROOF

Through tests conducted at the Japan Testing Center for Construction Materials, Kumahira pre-fabricated panels have been approved as fire-proof material by the Ministry of Construction.



## EARTHQUAKE

At a test conducted at the national university, Kumahira pre-fabricated vault wall has been proved to be secure against conditions equal to an earthquake measuring 7 on the richter scale.



# STATISTICS AND COMPARISONS

## BURGLAR AND FIRE RATINGS

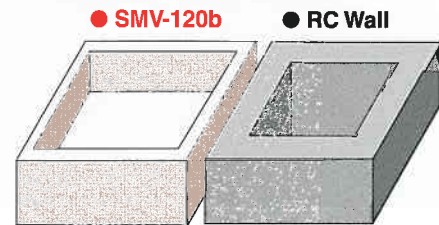
CASH VAULTS					
TYPE	MODEL	PANEL THICKNESS	WEIGHT/M <sup>2</sup>	FIRE RATING	BURGLAR RATING
SUPER MODULAR VAULT	SMV-120b	120mm	275kgs (605lbs)	3 hours	Equivalent to 700 RC
MODULAR VAULT	MV-8030	80mm	199kgs (437.8lbs)	2 hours	Equivalent to 300 RC
	MV-80b	80mm	90kgs (198lbs)	2 hours	Equivalent to 200 RC

※700 RC means the equivalent to a vault wall constructed of 700 mm thickness reinforced concrete.

RECORD VAULTS				
PANEL VAULT	PV-60	60mm	100kgs (220lbs)	2 hours
	PV-60L	60mm	75kgs (165lbs)	1.5 hours

### Comparison of weights and usable floor space between modular vaults and reinforced concrete vaults

Note: The vault size used for this comparison is 3m by 4m in outside dimensions and 2.44m in inside ceiling height.



Inside floor space 10.38m<sup>2</sup>      Inside floor space 4.16m<sup>2</sup>

	USABLE FLOOR SPACE PROVIDED BY MODULAR VAULT	USABLE FLOOR SPACE PROVIDED BY RC WALL	WEIGHT OF MODULAR VAULT	WEIGHT OF RC WALL	REDUCTION IN WEIGHT
SMV-120b	10.38m <sup>2</sup>	4.16m <sup>2</sup>	15672kgs	86231kgs	81.8%
MV-8030	10.90m <sup>2</sup>	8.16m <sup>2</sup>	11419kgs	39767kgs	71.3%
MV-80b	10.90m <sup>2</sup>	9.36m <sup>2</sup>	5164kgs	26980kgs	80.9%

# SHOWCASE OF AN ACTUAL INSTALLATION

The pictures below show the simple and quick construction of a pre-fabricated vault. The floor is marked with the position of the vault (picture #1) and four columns are erected (#2) to which steel bars are attached to form the base for the framework. The individual walls are fitted to the framework (#3) after which the ceiling panels can be positioned (#4). Next, the vault door is hung (#5) as well as emergency door, if desired and, finally, the inside and outside of the vault are finished (#6). Vaults like the one shown here have been erected in about 10 workdays.

Note:

Nowadays outside-top horizontal stay-pipes aren't used, but inside vertical column-pipes of the end of ceiling beam are set up.





**KUMAHIRA'S 26-INCH CIRCULAR VAULT DOOR WITH AN OVERALL THICKNESS OF 37 INCHES AND A GROSS WEIGHT OF 40 tons.**

Subject to change in specifications, without notice, for modification or improvement.



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