

Recent trends of Seismic Isolation “SI” & Vibration Control “VC” Buildings in Japan

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JSSI accumulates these data for SI & VC buildings,
with the cooperation of members.

These data were accumulated until the end of 2021.

A list of the members who cooperated is posted on the last page.
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June 13, 2023

The Japan Society of Seismic Isolation

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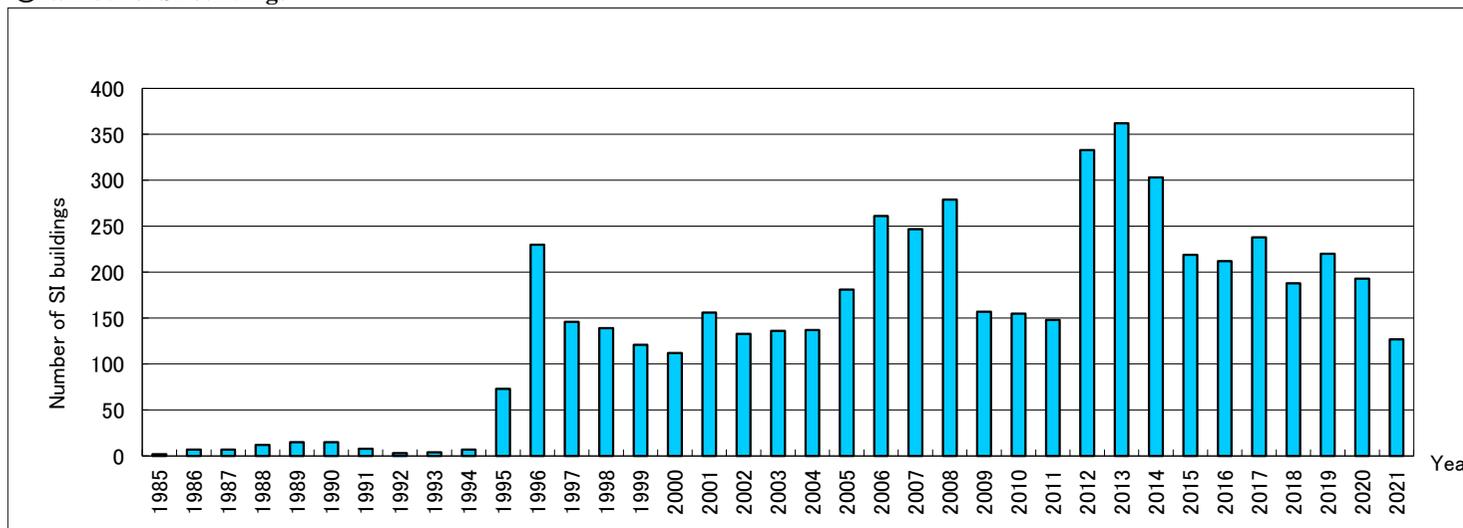
Figures show number of SI buildings, by year.

Data from ① to ④ and ⑥ to ⑫ show the number of buildings, and ⑤ shows the data of houses.

Aggregate results

- ① Number of SI buildings
- ② Number of SI buildings - Condominiums
- ③ Number of SI buildings - Hospitals/Clinics
- ④ Number of SI buildings - Public/Private
- ⑤ Number of SI Houses
- ⑥ Number of High-rise SI buildings
- ⑦ Usage ratio of SI buildings
- ⑧ Number of SI retrofitted buildings
- ⑨ Number of SI retrofitted buildings - Public/Private
- ⑩ Number of SI retrofitted buildings - Construction method
- ⑪ Number of isolators installed
- ⑫ Usage Ratio of Isolators

① Number of SI buildings

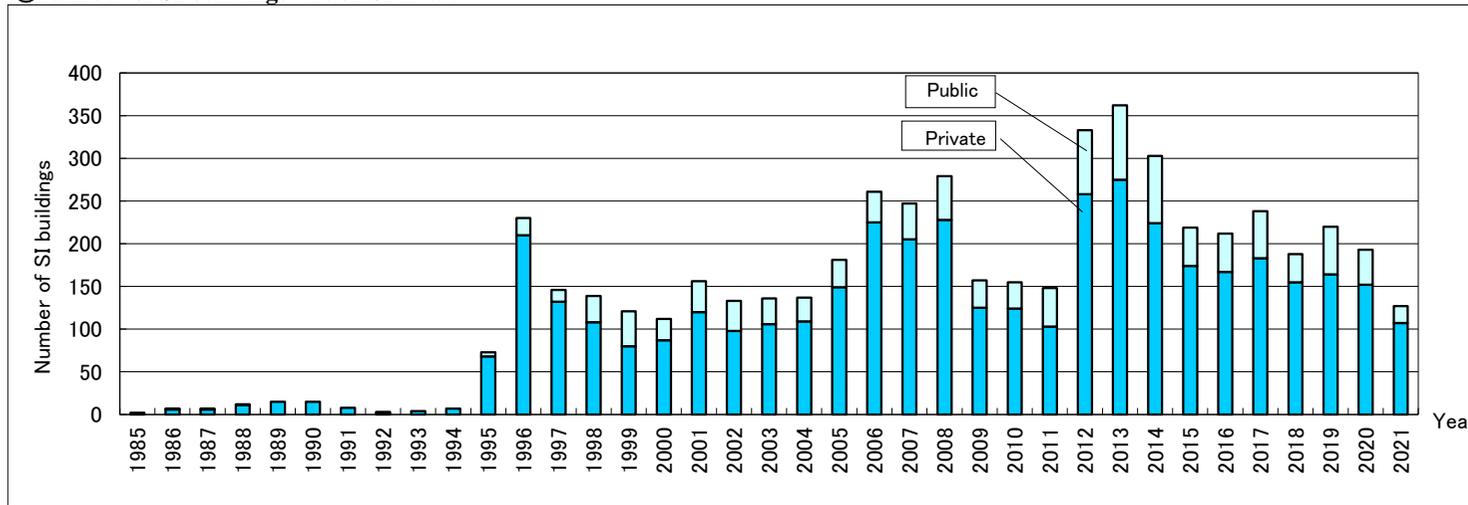


Year	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
SI buildings	2	7	7	12	15	15	8	3	4	7	73	230	146	139	121	112	156	133	136	137

Year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
SI buildings	181	261	247	279	157	155	148	333	362	303	219	212	238	188	220	193	127

Total	
SI buildings	5286

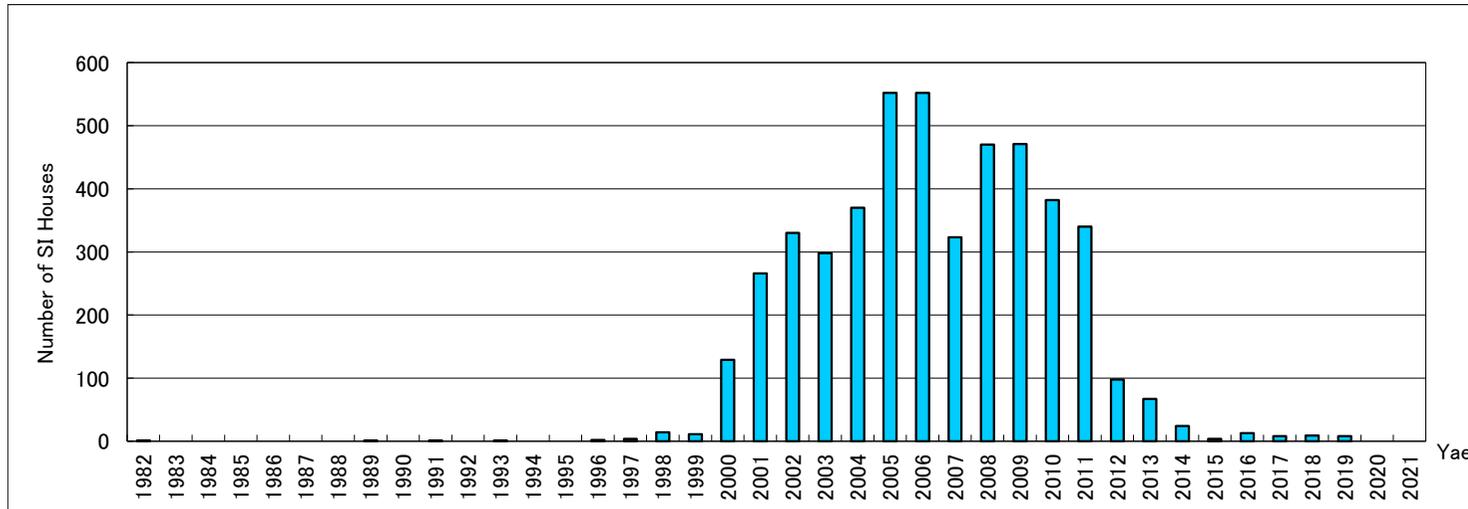
④ Number of SI buildings - Public/Private



Year	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Public	0	1	1	1	0	0	0	1	0	0	5	20	14	31	41	25	36	35	30	28
Private	2	6	6	11	15	15	8	2	4	7	68	210	132	108	80	87	120	98	106	109
Year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021			
Public	32	36	42	51	32	31	45	75	87	79	45	45	55	33	56	41	20			
Private	149	225	205	228	125	124	103	258	275	224	174	167	183	155	164	152	107			

Total	
Public	1074
Private	4212
Total	5286

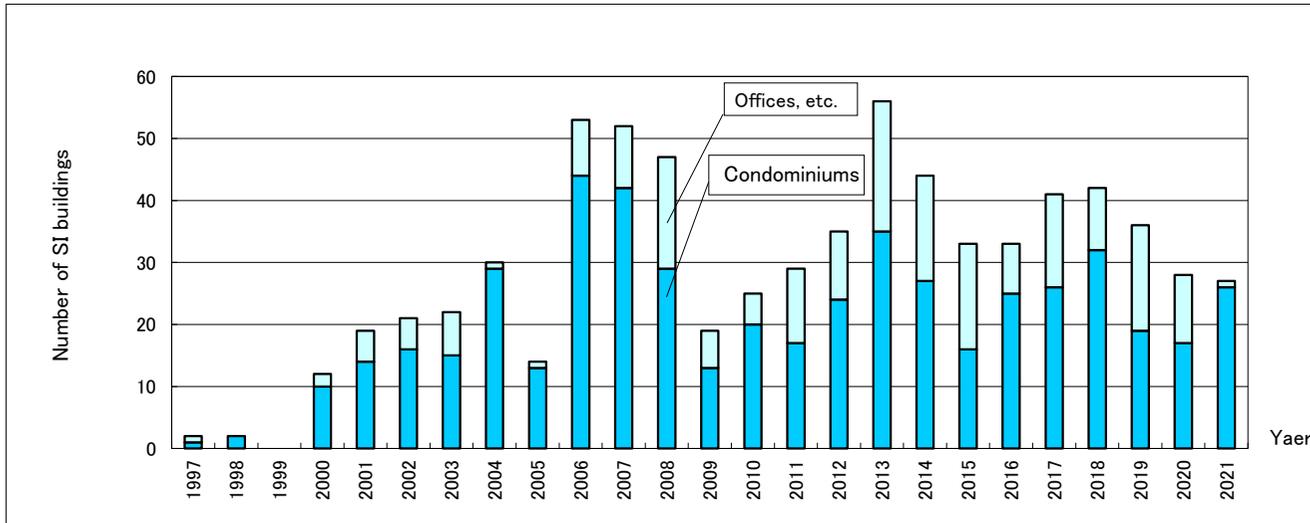
⑤ Number of SI Houses



Year	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Houses	1	0	0	0	0	0	0	1	0	1	0	1	0	0	2	4	14	11	129	266	330
Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021		
Houses	298	370	552	552	323	470	471	382	340	98	67	24	4	13	8	9	8	0	0		

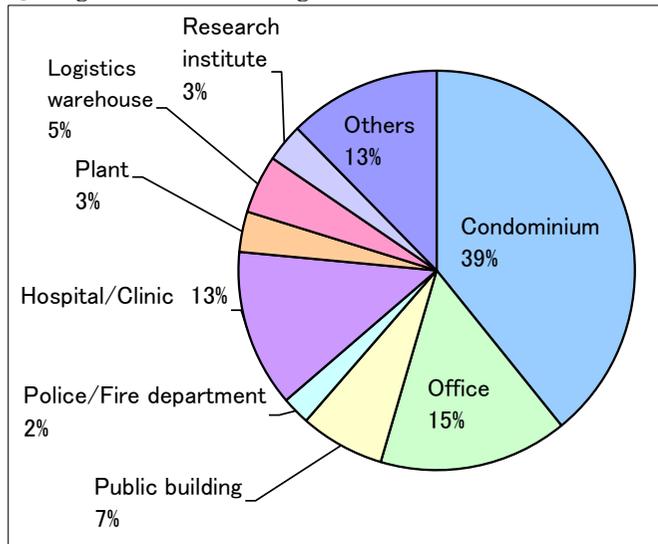
Total	
Houses	4749

⑥ Number of High-rise SI buildings

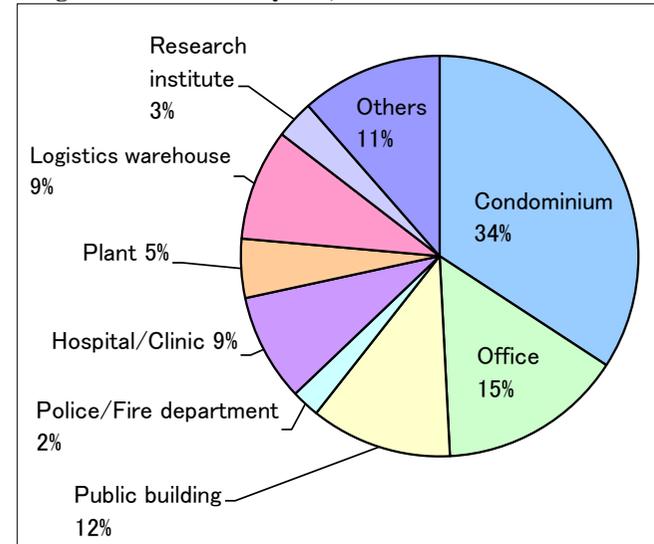


Year	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Total
Offices, etc.	1	0	0	2	5	5	7	1	1	9	10	18	6	5	12	11	21	17	17	8	15	10	17	11	1	210
Condominiums	1	2	0	10	14	16	15	29	13	44	42	29	13	20	17	24	35	27	16	25	26	32	19	17	26	512
Subtotal	2	2	0	12	19	21	22	30	14	53	52	47	19	25	29	35	56	44	33	33	41	42	36	28	27	722

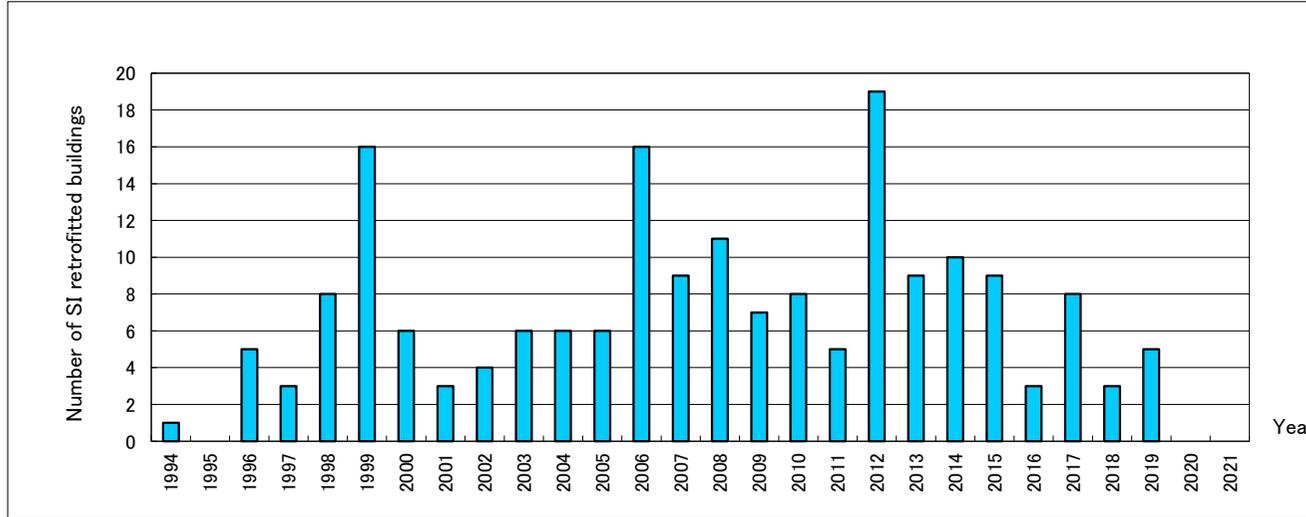
⑦ Usage ratio of SI buildings



Usage ratio in the last 5 years, from 2017 to 2021

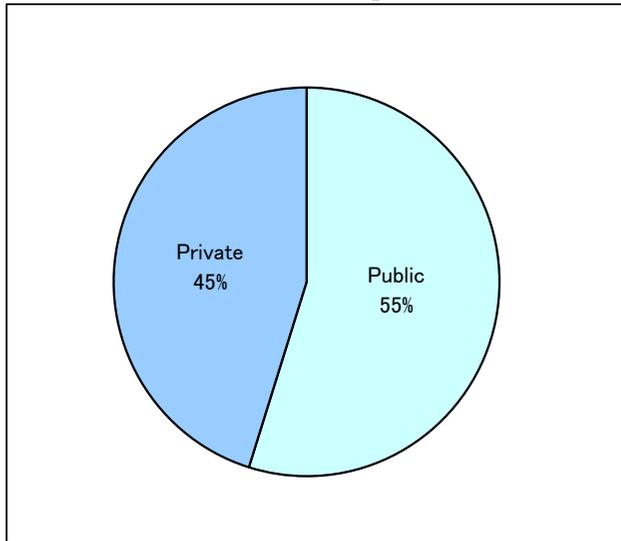


⑧ Number of SI retrofitted buildings



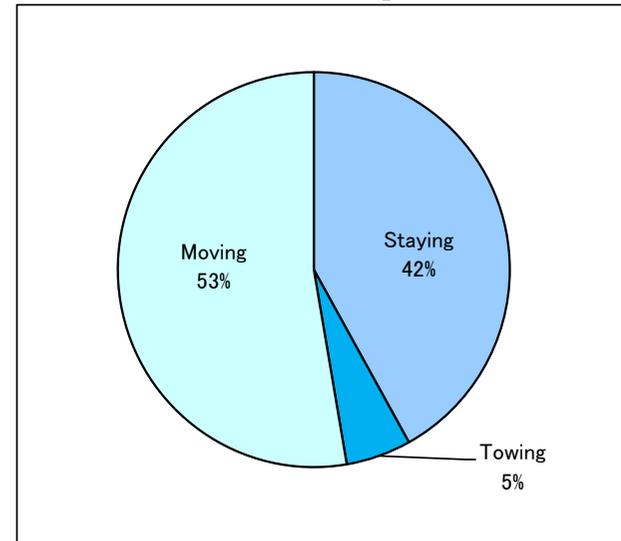
Year	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Total
Retrofit	1	0	5	3	8	16	6	3	4	6	6	6	16	9	11	7	8	5	19	9	10	9	3	8	3	5	0	0	<u>186</u>

⑨ Number of SI retrofitted buildings - Public/Private



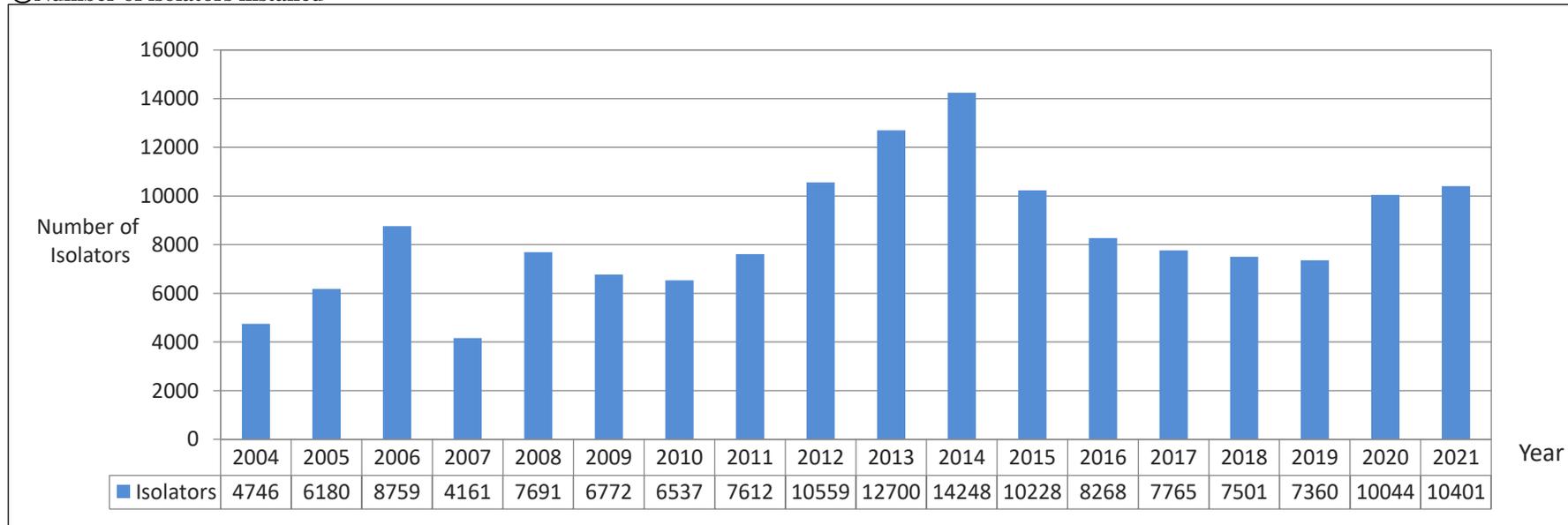
	Bldgs.
Public	102
Private	84
Total	186

⑩ Number of SI retrofitted buildings - Construction method



	Bldgs.
Staying	78
Towing	10
Moving	98
Total	186

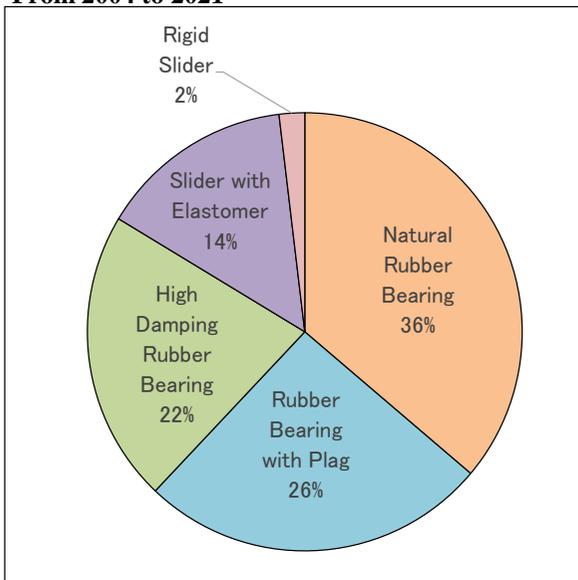
⑪ Number of isolators installed



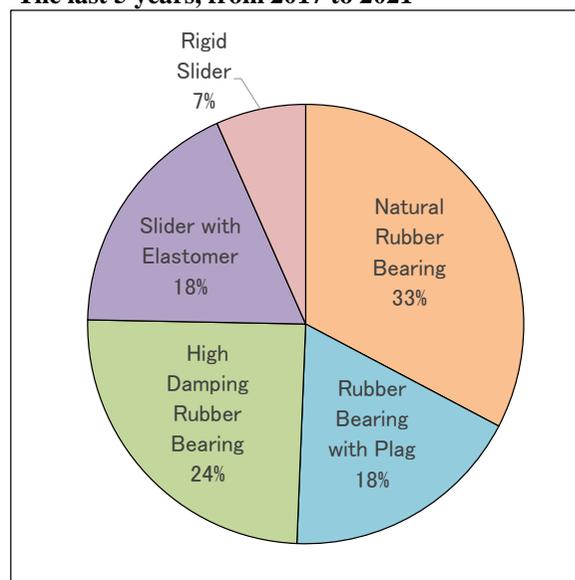
⑮ Usage Ratio of Isolators

※The number of units to be delivered.

From 2004 to 2021



The last 5 years, from 2017 to 2021



Recent trends of Vibration Control “VC” Buildings in Japan

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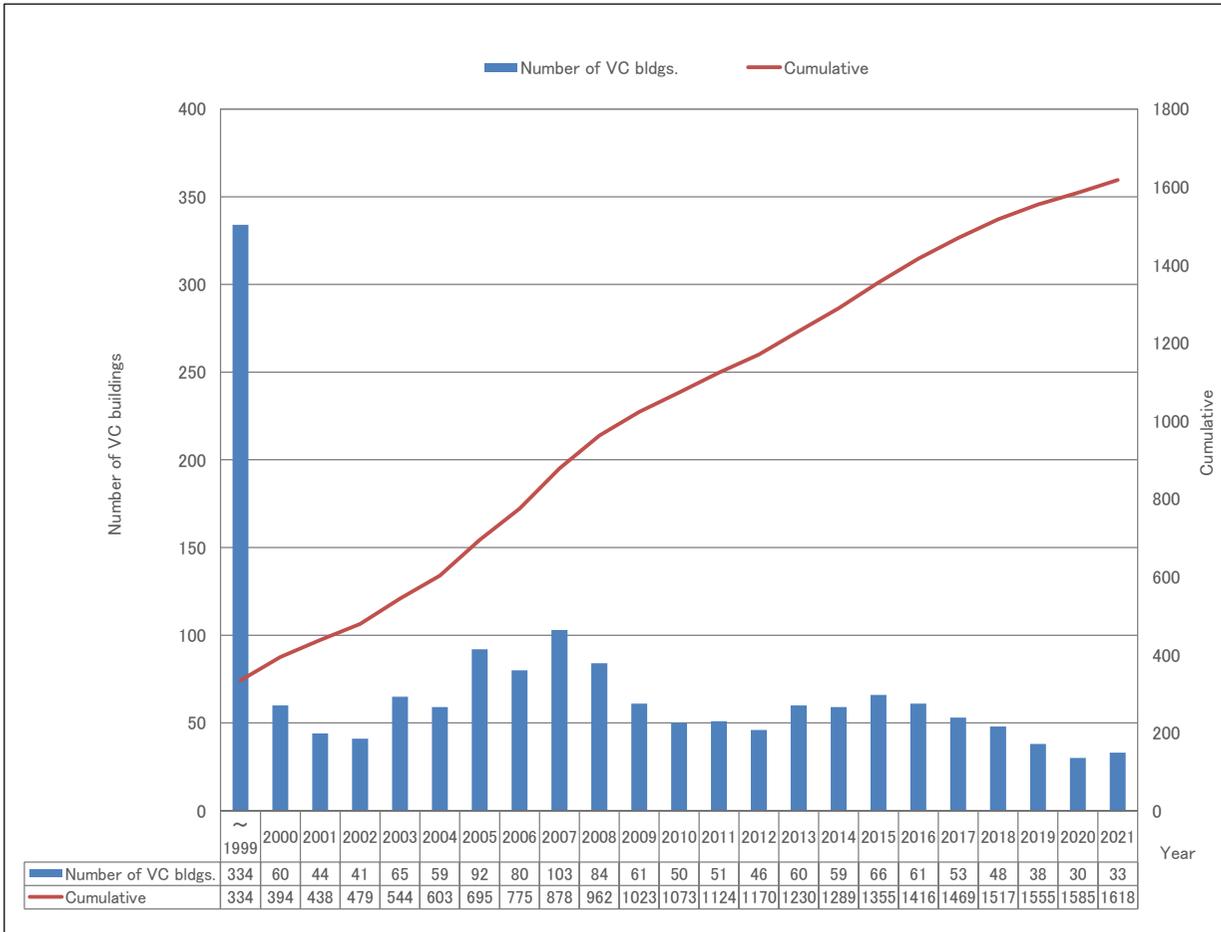
Aggregate results

① Number of VC buildings

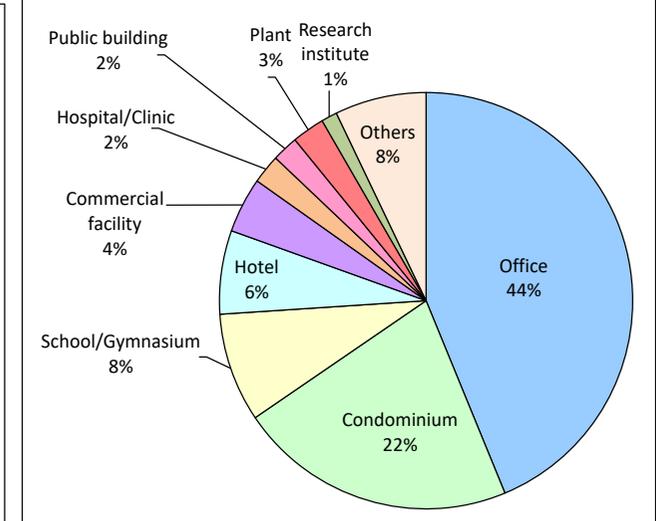
② Usage ratio of VC buildings

③ Number of VC devices installed

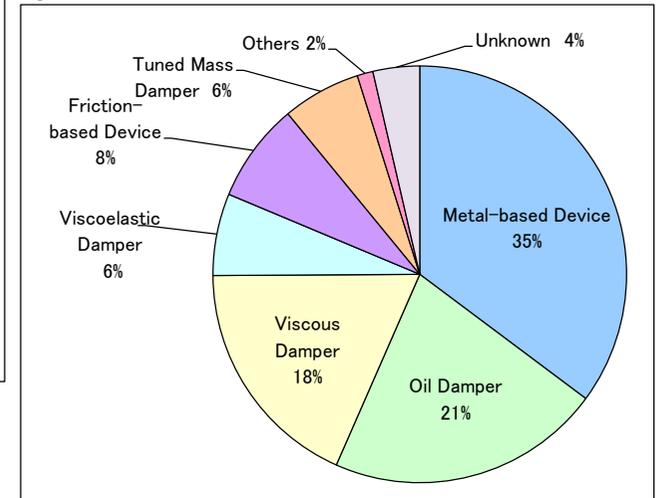
① Number of VC buildings



② Usage ratio of VC buildings



③ Number of VC devices installed



The ratio is based on the number of buildings, and when multiple devices are installed in one building, it is the main device.

Names of members who cooperated for accumulated data until the end of 2021

(108 companies)

ADVANCED SYSTEM Co., Ltd.	ASANUMA CORPORATION	AXS SATOW Inc.	BBM Co., Ltd.
Bridgestone Corporation	Bridgestone Diversified Products Japan Co., Ltd.	CHUBU Electric Power	Constec Engi,Co.
Dai Nippon Construction	DAIHO CORPORATION	DAIKEN SEKKEI, INC.	DAISUE CONSTRUCTION CO., LTD.
Dynamic Design Inc.	Electric Power Development Co., Ltd.	Fujita Corporation	Fukuda Corporation
FUSOKIKO Co., Ltd.	HASEKO Corporation	HIRAI FACTORY COMPANY LTD.	Hokkaido Electric Power Company
Hokuriku Electric Power Company	i2S2 co., Ltd.	ICHIJO CO., LTD.	ISHIKAWA KENSETSU CO., LTD.
Ishimoto Architectural & Engineering Firm, Inc.	Isolator Techno Support	Itogumi Construction Co., Ltd.	Japan Atomic Energy Agency
JAPAN INDUSTRIAL TESTING CO., Ltd.	Japan Nuclear Fuel Limited	JDC Corporation	JFE Civil Engineering Construction Corporation
JUST NISHINIHON Co., Ltd	K. ITO Architects & Engineers Inc.	KAJIMA CORPORATION	KAMIKOUCHI SEKKEI LTD
Kiuchi Construction Co., Ltd.	KONOIKE CONSTRUCTION CO., LTD.	KOUKEN Structural Engineers Co., Ltd.	KOZO SYSTEM, INC.
KozoSoft Co., LTD.	Kumagai Gumi Co., Ltd.	Kume Sekkei Co., Ltd.	KURASHIKI KAKO CO., LTD.
KUROSAWA CONSTRUCTION CO., LTD.	KYUSHU ELECTRIC POWER CO. INC.	MAEDA CORPORATION	Matsui Construction Co., Ltd.
MATSUMURA-GUMI CORPORATION	MEIKÔ CONSTRUCTIN CO., LTD.	MEIYU AIRMATIC CO., LTD.	MENSHIN ENGINEERING CO., LTD.
Menshin Techno Service Co., Ltd.	MHS Planners, Architects & Engineers	Mitsubishi Jisho Design Inc.	Naito Architects Co., Ltd.
NAKANO CORPORATION	NIHON SEKKEI, INC.	NIITAKA SEISAKUSHO CO., LTD.	NIKKEN HOUSING SYSTEM LTD.
Nikken Sekkei Ltd.	NIPPON STEEL ENGINEERING CO., LTD.	Nishimatsu Construction Co., Ltd.	NTT FACILITIES, INC.
OBAYASHI CORPORATION	OILES CORPORATION	OKABE CO., LTD.	OKLEX CO.,LTD.
OKUMURA CORPORATION	Oriental Shiraishi Corporation	ORIMOTO STRUCTURAL ENGINEERS INC.	OTANIKOGYO CO.,LTD
P.S. Mitsubishi Construction Co., Ltd.	PENTA-OCEAN CONSTRUCTION CO., LTD.	RIA (Research Institute of Architecture)	S. A. I. Structural Design Co., Ltd.
SEIBU CONSTRUCTION CO., LTD.	SENQCIA CORPORATION	Shikoku Electric Power Company, Incorporated	SHIMIZU CORPORATION
SHINMEI-KOUMUTEN Ltd.	Starts Construction and Asset Management Co., Ltd.	Sumitomo Metal Mining Siporex Co., Ltd.	Sumitomo Mitsui Construction Co., Ltd.
Sumitomo Riko Company Limited	SWCC Corporation	TAISEI CORPORATION	Takenaka Corporation
TEKKEN CORPORATION	The Chugoku Electric Power Co., Inc.	The Kansai Electric Power Co., Inc.	TOA CORPORATION
TOBISHIMA CORPORATION	TODA CORPORATION	Tohata Architects & Engineers, Inc.	Tohoku Electric Power Co., Inc.
TOK-KEN Corporation	TOKYO ELECTRIC POWER COMPANY	TOKYO ELECTRIC POWER SERVICES CO., LTD.	Tokyo Kenchiku Structural Engineers Inc.
Tokyu Construction Co., Ltd.	TOMOE Corporation	TOYO CONSTRUCTION CO., LTD.	Toyo Tire Corporation
UEKI Corporation	YAHAGI CONSTRUCTION CO., LTD.	Yamashita Sekkei, Inc.	Yasui Architects & Engineers, Inc.