

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

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

These data were accumulated until the end of 2022.

A list of the members who cooperated is posted on the last page.

June 14, 2024

The Japan Society of Seismic Isolation

# Recent trends of Seismic Isolation “SI” Buildings in Japan

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

These data were accumulated until the end of 2022.

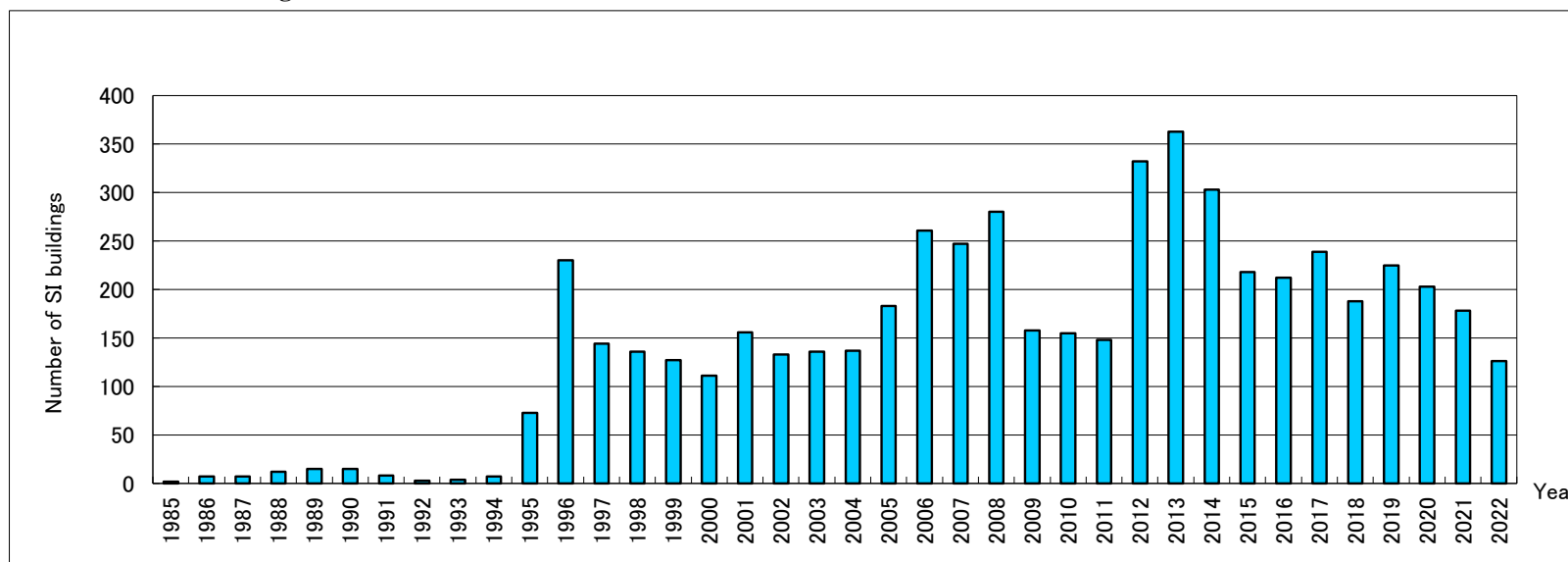
Figures show number of SI buildings, by year.

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 Usages 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 Types of Isolators installed

### ① Number of SI buildings

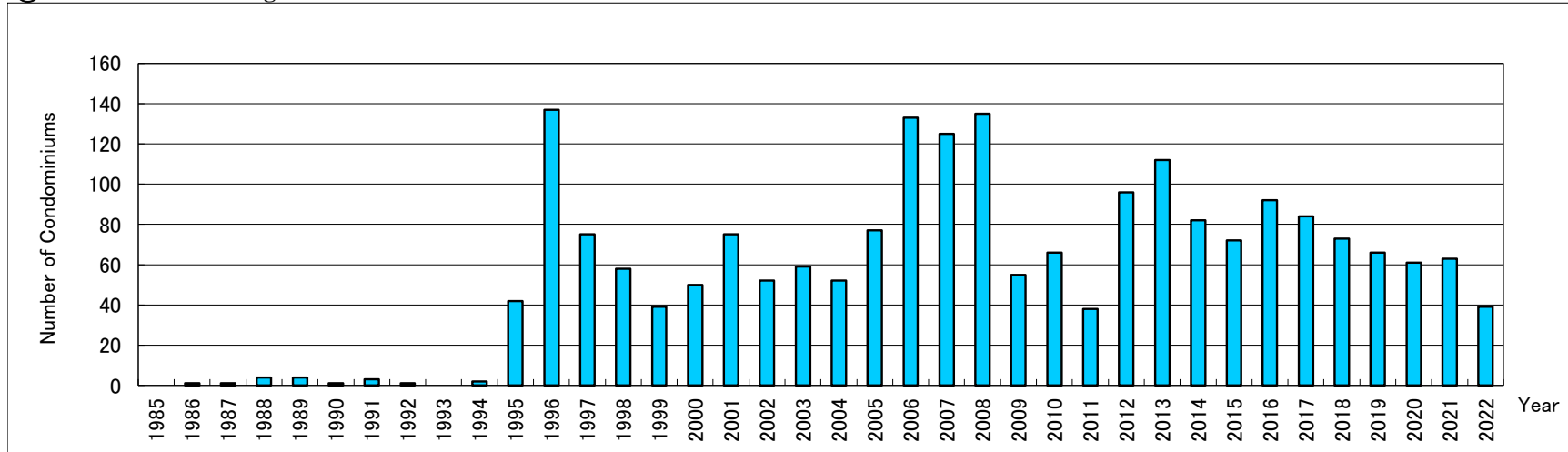


Year	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
SI buildings	2	7	7	12	15	15	8	3	4	7	73	230	144	136	127	111	156	133	136	137

Year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
SI buildings	183	261	247	280	158	155	148	332	363	303	218	212	239	188	225	203	178	126

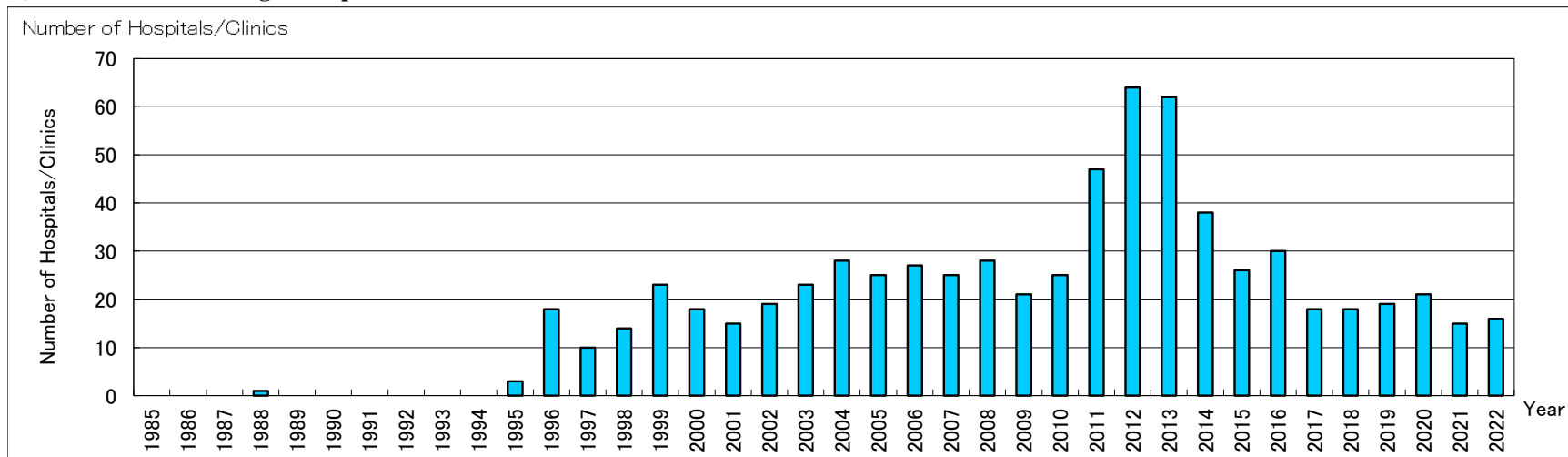
	Total
<u>SI buildings</u>	<u>5482</u>

**② Number of SI buildings - Condominiums**



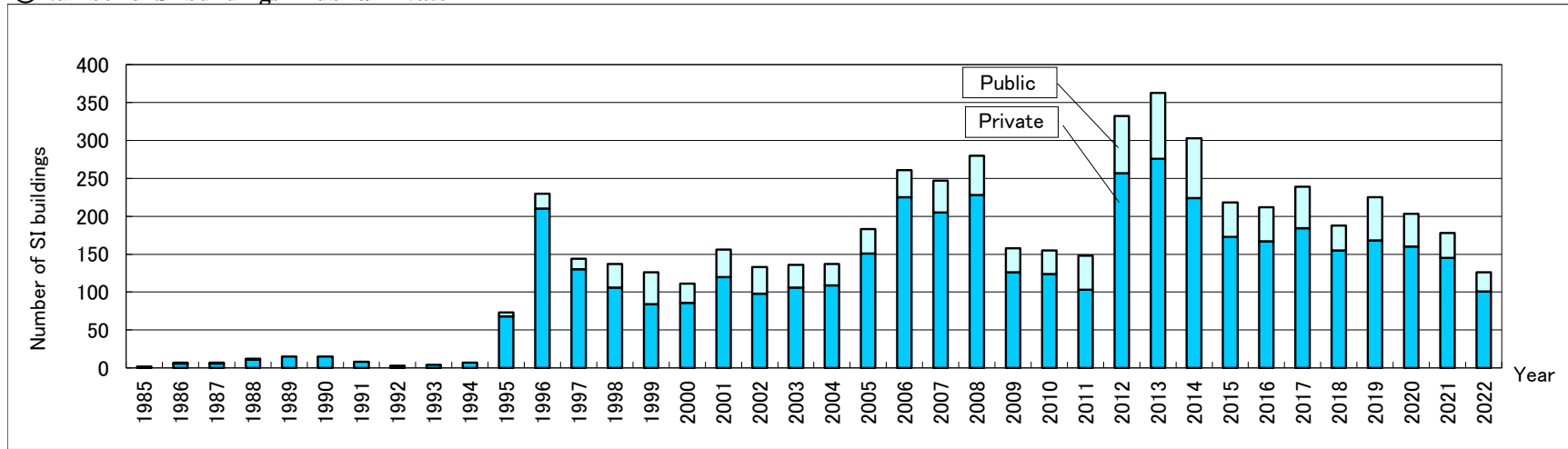
Year	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Condominiums	0	1	1	4	4	1	3	1	0	2	42	137	75	58	39	50	75	52	59	52
Year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Total	
Condominiums	77	133	125	135	55	66	38	96	112	82	72	92	84	73	66	61	63	39	Condominiums	2125

**③ Number of SI buildings - Hospitals/Clinics**



Year	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Hospitals/Clinics	0	0	0	1	0	0	0	0	0	0	3	18	10	14	23	18	15	19	23	28
Year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Total	
Hospitals/Clinics	25	27	25	28	21	25	47	64	62	38	26	30	18	18	19	21	15	16	Hospitals/Clinics	697

**④ Number of SI buildings - Public/Private**

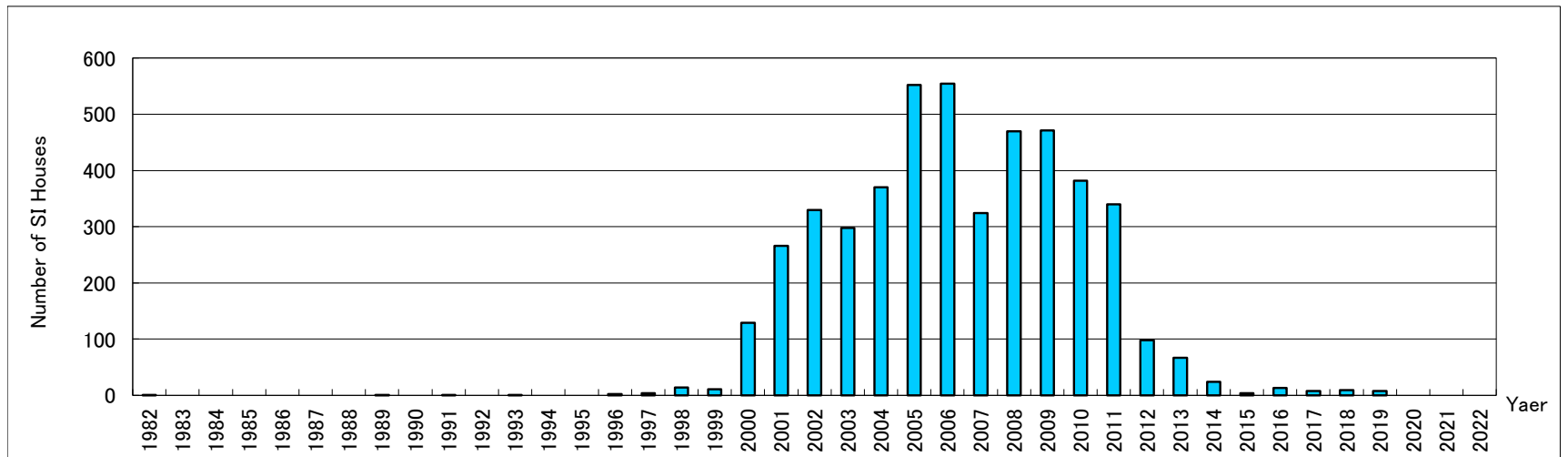


Year	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Public	0	1	1	1	0	0	0	1	0	0	5	20	14	31	42	25	36	35	30	28
Private	2	6	6	11	15	15	8	2	4	7	68	210	130	106	84	86	120	98	106	109

Year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Public	32	36	42	52	32	31	45	75	87	79	45	45	55	33	57	43	33	25
Private	151	225	205	228	126	124	103	257	276	224	173	167	184	155	168	160	145	101

Total	1117
Public	4365
Private	5482

**⑤ Number of SI Houses**

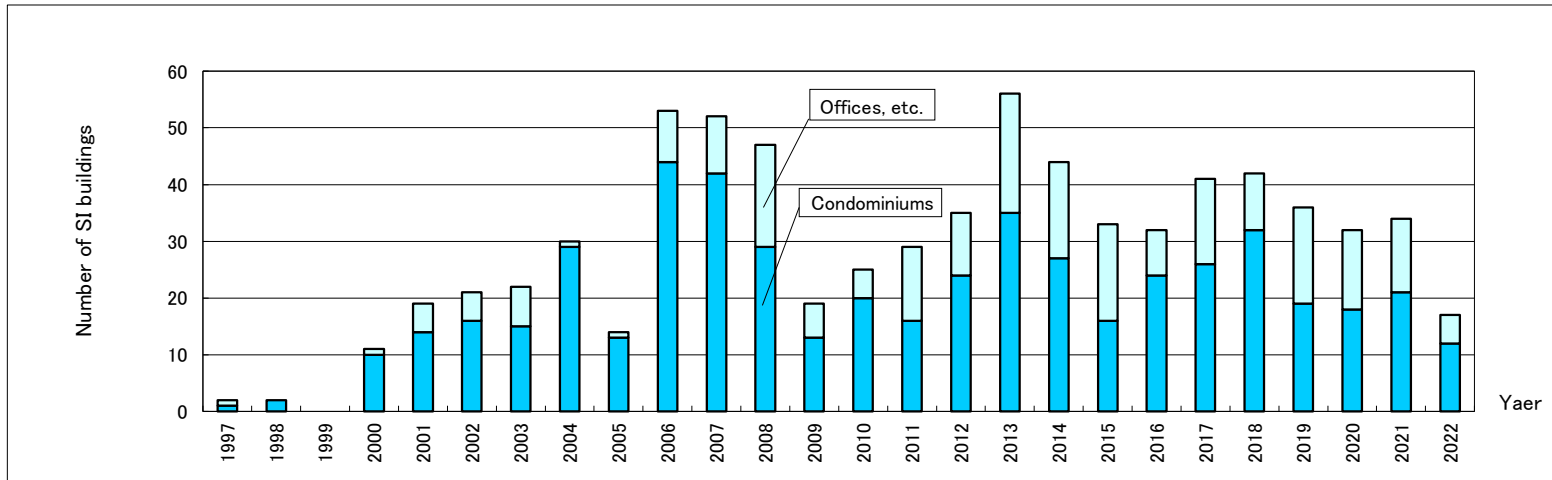


Year	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	
Houses	1	0	0	0	0	0	0	1	0	1	0	1	0	0	0	2	4	14	11	129	266	330

Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Houses	298	370	552	554	324	470	471	382	340	98	67	24	4	13	8	9	8	0	0	0

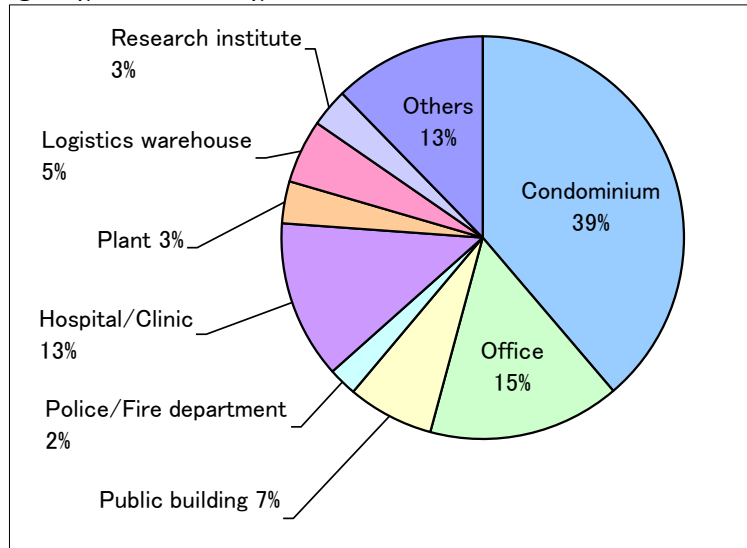
Total	4752
Houses	

**⑥ Number of High-rise SI buildings**

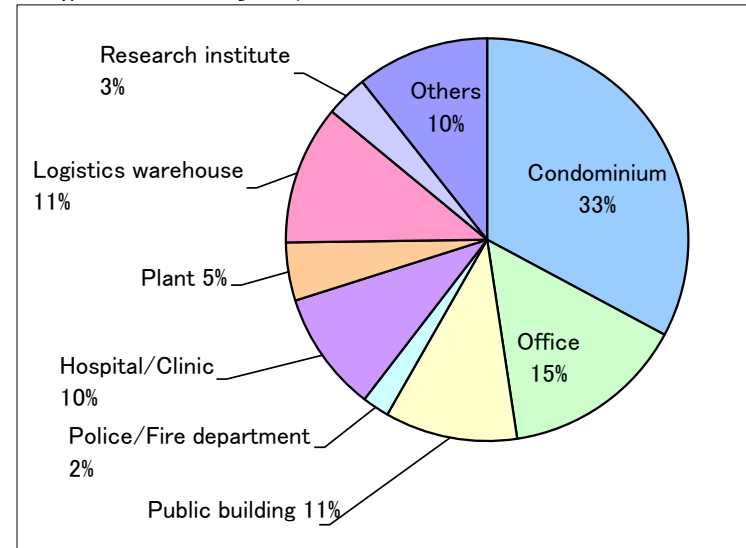


Year	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Total
Offices, etc.	1	0	0	1	5	5	7	1	1	9	10	18	6	5	13	11	21	17	17	8	15	10	17	14	13	5	230
Condominiums	1	2	0	10	14	16	15	29	13	44	42	29	13	20	16	24	35	27	16	24	26	32	19	18	21	12	518
Subtotal	2	2	0	11	19	21	22	30	14	53	52	47	19	25	29	35	56	44	33	32	41	42	36	32	34	17	748

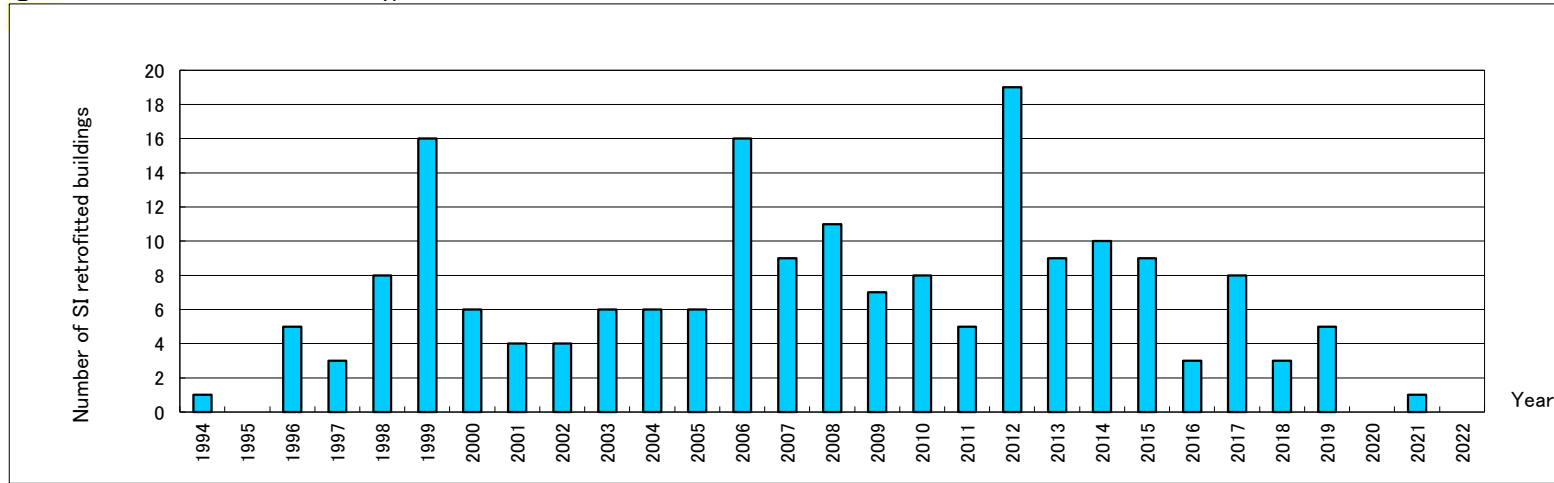
**⑦ Usages of SI buildings**



**Usages in the last 5 years, from 2018 to 2022**

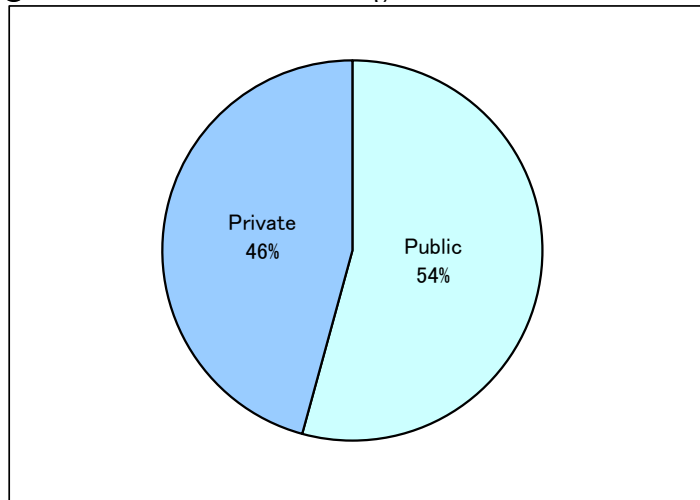


**⑧ Number of SI retrofitted buildings**



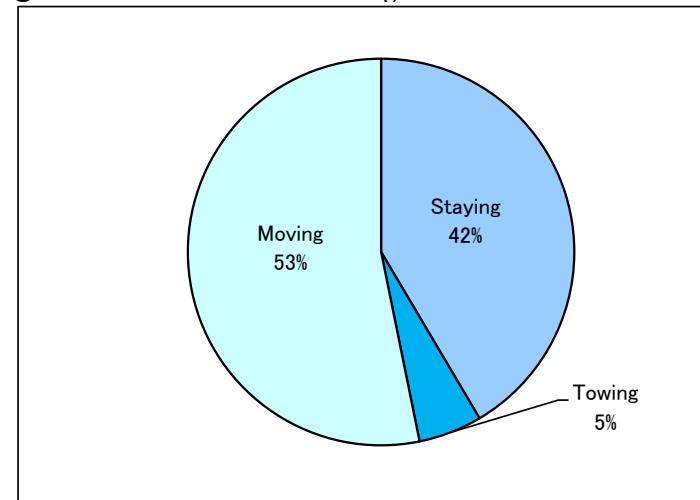
Year	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Total
Retrofit	1	0	5	3	8	16	6	4	4	6	6	6	16	9	11	7	8	5	19	9	10	9	3	8	3	5	0	1	0	<u>188</u>

**⑨ Number of SI retrofitted buildings - Public/Private**



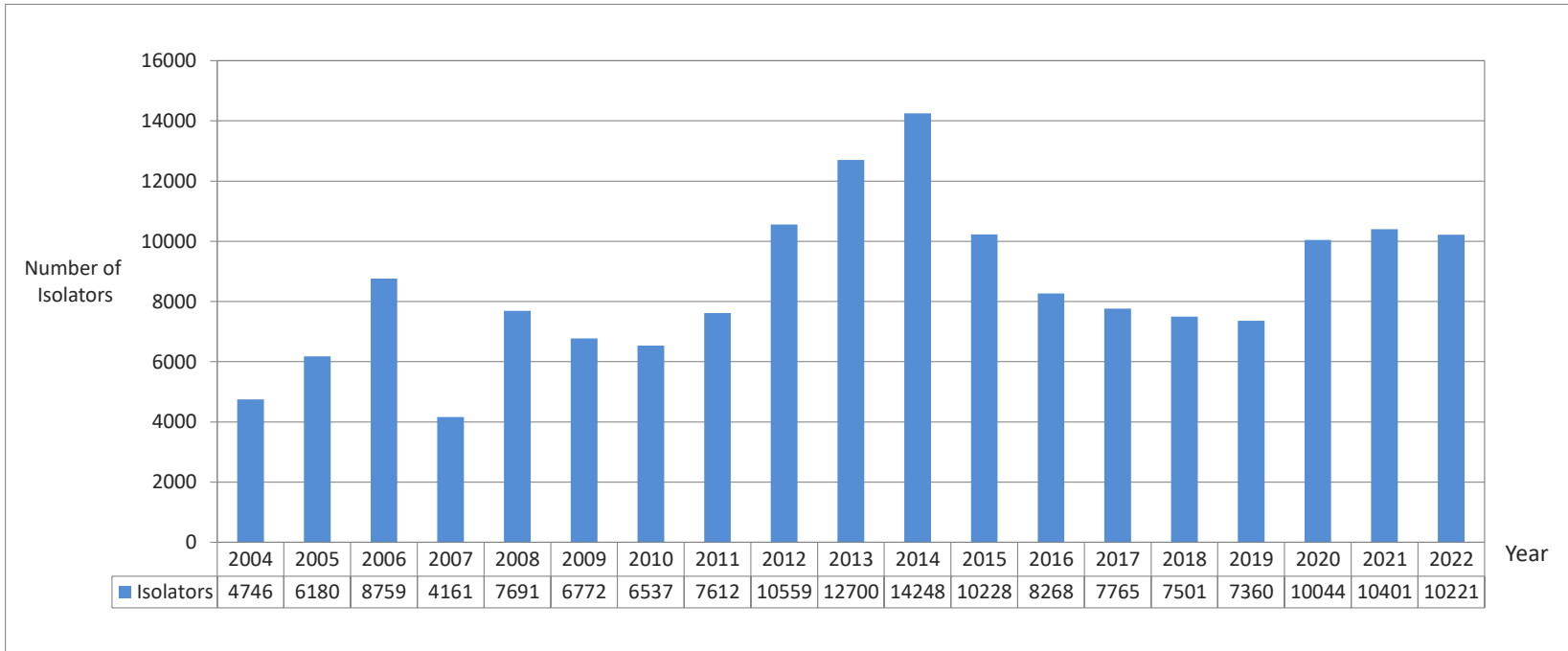
	Bldgs.
Public	102
Private	86
<b>Total</b>	<b>188</b>

**⑩ Number of SI retrofitted buildings - Construction method**



	Bldgs.
Staying	78
Towing	10
Moving	100

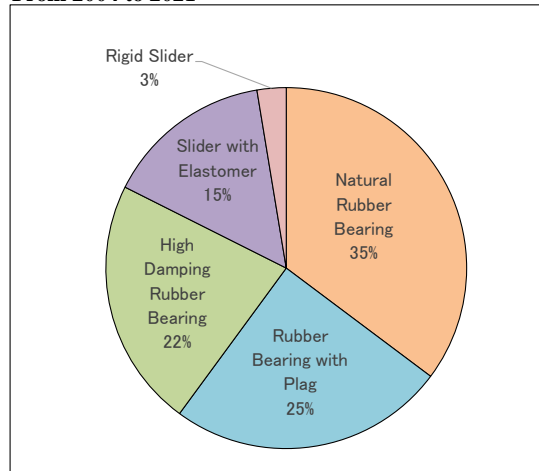
① Number of isolators installed



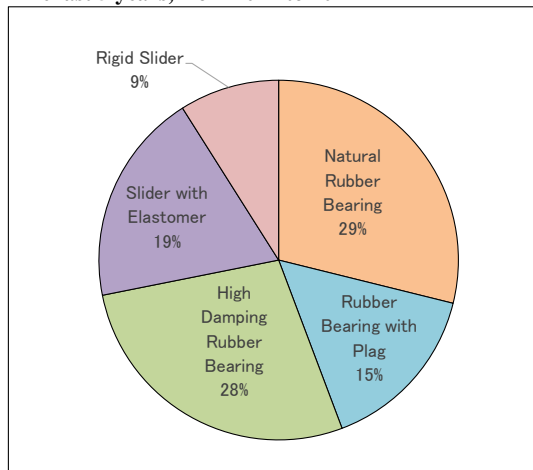
② Types of Isolators installed

※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

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

These data were accumulated until the end of 2022.

Figures show number of VC buildings, by year.

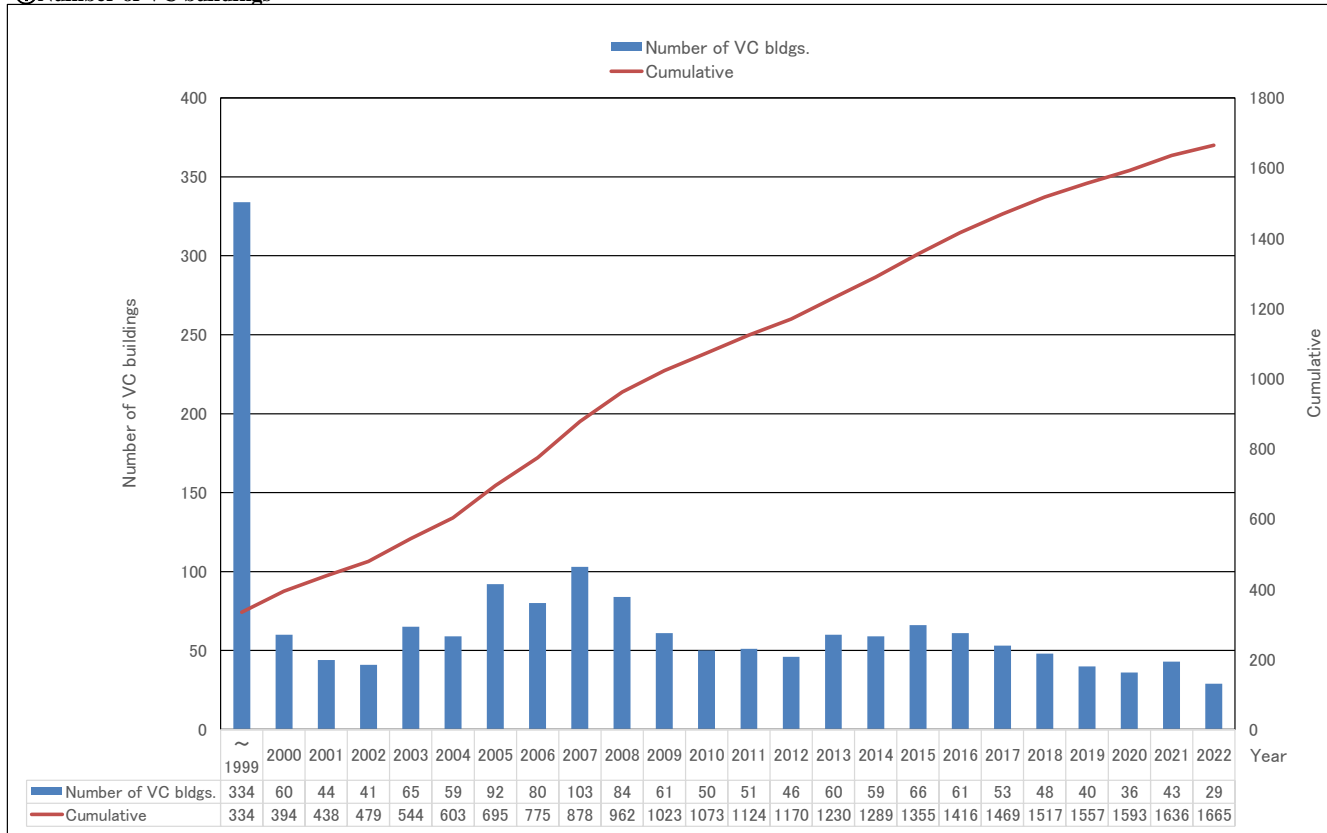
### Aggregate results

① Number of VC buildings

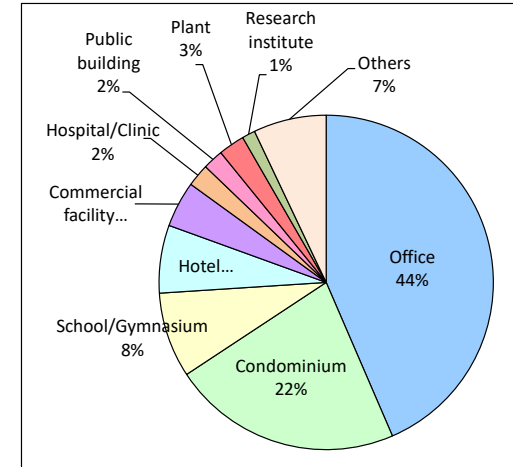
② Usages of VC buildings

③ Types of VC devices installed

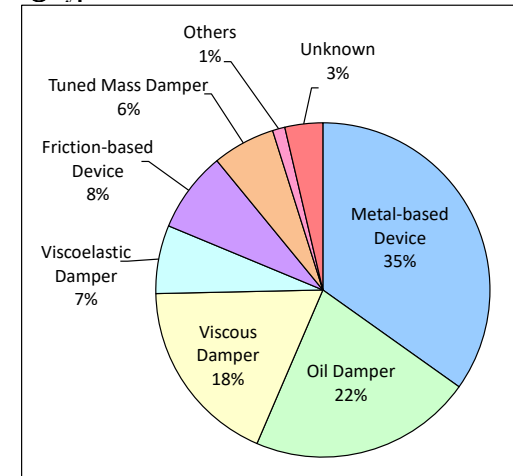
#### ① Number of VC buildings



#### ② Usages of VC buildings



#### ③ Types 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 2022

(102 companies)

ARTES CORPORATION	Isolator Techno Support	Mitsubishi Jisho Design Inc.	Sumitomo Metal Mining Siporex Co., Ltd.
ASANUMA CORPORATION	Itogumi Construction Co., Ltd.	Mori Building Co., Ltd.	Sumitomo Mitsui Construction Co., Ltd.
ASO SHOJI CO., LTD.	Izumi Sohken Engineering Co., Ltd.	Naito Architects Co., Ltd.	Sumitomo Riko Company Limited
AXS SATOW Inc.	Japan Atomic Energy Agency	NAKANO CORPORATION	SWCC Corporation
BBM Co., Ltd.	Japan Nuclear Fuel Limited	NIHON SEKKEI, INC.	TAISEI CORPORATION
Bridgestone Corporation	JFE Civil Engineering Construction Corporation	NIHON SEKKEI, INC.	Takenaka Corporation
Bridgestone Diversified Products Japan Co., Ltd.	JR East Design Corporation	NIKKEN HOUSING SYSTEM LTD.	The Chugoku Electric Power Co., Inc.
b-techno systems inc.	JUST NISHINIHON Co., Ltd	NIPPON STEEL ENGINEERING CO., LTD.	The Japan Atomic Power Company
CHUBU Electric Power	KAJIMA CORPORATION	Nishimatsu Construction Co., Ltd.	The Kansai Electric Power Co., Inc.
DAIHO CORPORATION	Kiuchi Construction Co., Ltd.	Nitta Corporation	TOBISHIMA CORPORATION
DAISUE CONSTRUCTION CO., LTD.	KONOIKE CONSTRUCTION CO., LTD.	NTT FACILITIES, INC.	TODA CORPORATION
Daiwa House Industry Co., Ltd.	KOZO KEIKAKU ENGINEERING Inc.	OBAYASHI CORPORATION	Tohata Architects & Engineers, Inc.
Dynamic Design Inc.	KOZO SYSTEM, INC.	OILES CORPORATION	Tohoku Electric Power Co., Inc.
Electric Power Development Co., Ltd.	KozoSoft Co., LTD.	OKABE CO., LTD.	TOK-KEN Corporation
Fujita Corporation	Kumagai Gumi Co., Ltd.	OKUMURA CORPORATION	TOK-KEN Corporation
Fukuda Corporation	Kume Sekkei Co., Ltd.	Oriental Shiraishi Corporation	TOKYO ELECTRIC POWER COMPANY
FUSOKIKO Co., Ltd.	KURASHIKI KAKO CO., LTD.	ORIMOTO STRUCTURAL ENGINEERS INC.	Tokyo Kenchiku Structural Engineers Inc.
HASEKO Corporation	KUROSAWA CONSTRUCTION CO., LTD.	P.S. Mitsubishi Construction Co., Ltd.	Tokyu Construction Co., Ltd.
HAZAMA ANDO CORPORATION	KYUSHU ELECTRIC POWER CO. INC.	PENTA-OCEAN CONSTRUCTION CO., LTD.	TOMOE Corporation
HIRAI FACTORY COMPANY LTD.	MAEDA CORPORATION	RIA (Research Institute of Architecture)	TOYO CONSTRUCTION CO., LTD.
Hokkaido Electric Power Company	Matsui Construction Co., Ltd.	SATO KOGYO CO.,LTD	Toyo Tire Corporation
Hulic Property Solution Co., Ltd.	MATSUMURA-GUMI CORPORATION	SEIBU CONSTRUCTION CO., LTD.	YAHAGI CONSTRUCTION CO., LTD.
i2S2 co., ltd.	MEIKÔ CONSTRUCTIN CO., LTD.	SENQCIA CORPORATION	Yamashita Sekkei, Inc.
ICHIJO CO., LTD.	Menshin Techno Service Co., Ltd.	Shikoku Electric Power Company, Incorporated	Yasui Architects & Engineers, Inc.
ISHIKAWA KENSETSU CO., LTD.	MHS Planners, Architects & Engineers	SHIMIZU CORPORATION	
Ishimoto Architectural & Engineering Firm, Inc.	Mitsubishi Heavy Industries Machinery Systems, Ltd.	SHINMEI-KOUMUTEN Ltd.	