

Johkasou Performance Evaluation Test System in Japan

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Johkasou Performance Evaluation Test System in Japan

- ◆ Overview of Johkasou Performance Evaluation Test System in Japan
- ◆ Overview of Johkasou Performance Evaluation Test Method

What is Johkasou?

Positioning of Johkasou

If domestic wastewater is to be drained into a place other than the public sewerage, Johkasou must be provided.

Definition of Johkasou

Building Standards Act (Article 31), Order for Building Standards Act (Article 35)

1. Equipment for treating domestic wastewater built **with a structure specified by the Minister of Land, Infrastructure, Transport and Tourism (MLIT)**
2. Equipment for treating domestic wastewater built **with a structure approved by the Minister of MLIT**

Public Notice type Johkasou

Building Standards Act (Article 31), Order for Building Standards Act (Article 35)

1. A structure specified by the Minister of MLIT

It is provided in method for structure of night soil Johkasou
(Ministry of Construction Public Notification No. 1292 of 1980, last revised MLIT Public Notification No. 154 of 2006)



Public Notice (example specification) type Johkasou

A structure specified by the Minister of MLIT

Ministry of Construction Public Notification No. 1292 of 1980, last revised MLIT Public Notification No. 154 of 2006

Classification	Performance	Treatment method	PE
Class1 Item 1 Item 2 Item 3	BOD20mg/ℓ BOD20mg/ℓ BOD20mg/ℓ・T-N20 mg/ℓ	Separation-contract aeration method Anaerobic filter floor contact aeration method Denitrification type anaerobic filter floor contact aeration method	5～50
Class 6 item 1 item 2 item 3 item 4 item 5	BOD20mg/ℓ	Rotating biological contactor method Contact aeration method Trickling filter process Extend aeration method Conventional activated sludge process	51～ 51～ 501～ 101～ 5001～
Class 7 item 1 item 2	BOD10mg/ℓ	Structure of class 6 + Contact aeration・filtration method Structure of class 6 + flocculation – sedimentation process	101～ 51～
Class 8 item 1 item 2	BOD10mg/ℓ・COD10mg/ℓ	Structure of item 1 of class 7 + activated carbon adsorption method Structure of item 2 of class 7 + activated carbon adsorption method	101～ 51～
Class 9 item 1 Item 2	BOD10mg/ℓ・T-N20mg/ℓ ・T-P1mg/ℓ	Nitrified water recirculation type activated sludge process① Structure of class 6 + tertiary treatment type denitrification and dephosphorization method	51～ 51～
Class 10 item 1 Item 2	BOD10mg/ℓ・T-N15mg/ℓ ・T-P1mg/ℓ	Nitrified water recirculation type activated sludge process② Structure of class 6 + tertiary treatment type denitrification and dephosphorization method	51～ 51～
Class 11 item 1 Item 2	BOD10mg/ℓ・T-N10mg/ℓ ・T-P1mg/ℓ	Nitrified water recirculation type activated sludge process③ Structure of class 6 + tertiary treatment type denitrification and dephosphorization method	51～ 51～

A structure specified by the Minister of MLIT



Structural Standards of Public Notice Type Johkasou
(excerpt)

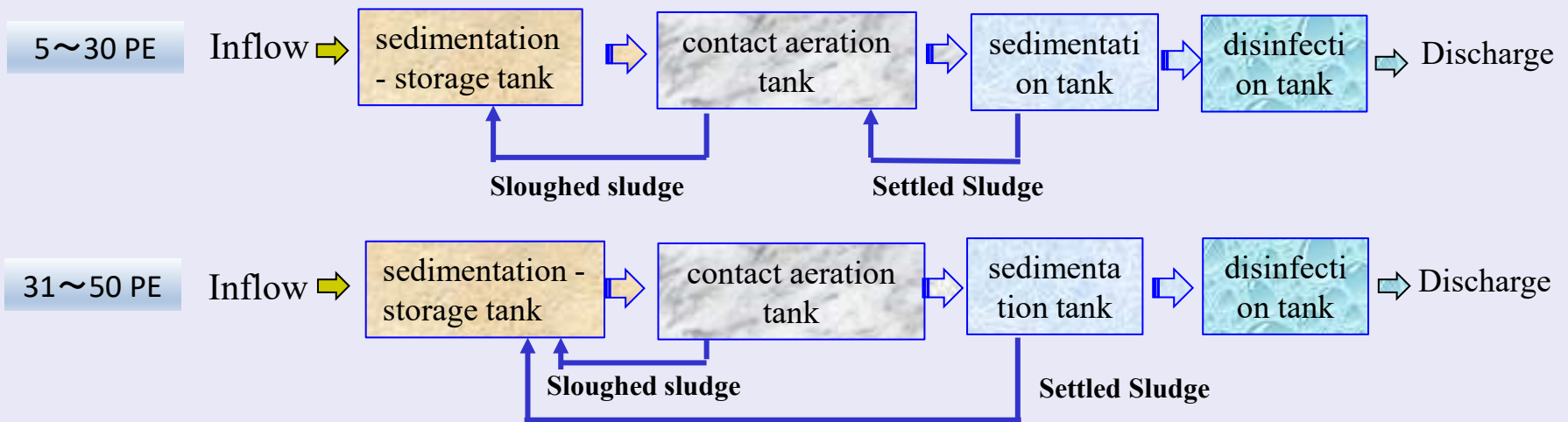
Ministry of Construction Public Notification No. 1292 of 1980, last revised MLIT
Public Notification No. 154 of 2006

Classification	Performance	Treatment method	PE
Class1 Item 1	BOD20mg/ℓ	Separation-contract aeration method	5~50

1 Separation-contract aeration method

Johkasou which structure is combined in following order with sedimentation - storage tank, contact aeration tank, sedimentation tank and disinfection tank provided in (1)~(4), and PE is less than 50 or less.

Flow sheet



Structure approved by the Minister of MLIT

○ Minister certification Johkasou

2. Structure approved by the Minister of MLIT

A structure that complies with the technical standards provided by government ordinance regarding Johkasou and is approved by the Minister of MLIT based on the results of an evaluation implemented by the Minister of MLIT or a performance evaluation organization designated by the Minister of MLIT.



Minister certification
Johkasou

characteristics

By technological development by manufacturers, it is possible to create products with characteristics that meet market needs, such as small – scale type, low cost type, and advanced treatment type

These days, it is major type in Johkasou market in Japan

Structure approved by the Minister of MLIT

Technical standards prescribed by government ordinance (Article 32, Enforcement Ordinance, Building Standards Act)

Article 32, Enforcement Ordinance, Building Standards Act

- It must have the performance specified in the table.
- It must have the performance to keep the number of coliform bacteria in the discharged water to 3,000/cm³ or less
- If Johkasou Act (Article 4, Paragraph 1) prescribes standards stricter than those in the table, the performance must be met.

→ Johkasou Act (Article 4, Paragraph 1)

▪ The Minister of the Environment shall make johkasou technical standard for water quality of johkasou treated water discharging to public water area by an Ordinance.

→ Article 1-2 of the Enforcement Regulations of Johkasou Act (Last revised: Environment Ministry Ordinance No. 29 of 2005)

- The BOD of the discharged water must be 20 mg/L or less.

Structure approved by the Minister of MLIT

The Table

District where Johkasou are installed	PE	Treatment performance	
		Removal rate of BOD (%)	BOD (mg/L)
Areas designated by a specific administrative agency as being particularly problematic from a sanitary perspective.	50 or less	65 or higher	90 or less
	51~500	70 or higher	60 or less
	501 or more	85 or higher	30 or less
Areas designated by the administrative agency as not causing any particular health problems.		55 or higher	120 or less
Other areas	500 or higher	65 or more	90 or less
	501 or more 2000 or more	70 or more	60 or less
	2001 or more	85 or more	30 or less

Size of Johkasou in PE

○ Number of user for designing (PE)

- PE is an index showing the treatment capacity of johkasou.
- A figure based on the number of people treated converted into a population equivalent (PE) per person per day by calculating the pollution load calculated from the volume and quality of domestic wastewater discharged from a building.
- It does not represent the number of people currently living or working in the building.
- Basic unit used to calculate the number of people treated

BOD load : 40 g/cap.day

Wastewater amount : 200 L/cap.day

BOD concentration : 200 mg/L

○ Calculation method of PE

The method for calculating PE is set out in the Japanese Industrial Standards "Estimation of population for johkasou of buildings (JIS A 3302:2000)" by Ministry of Construction Notification No. 3184 of 1969.

Number of user for designing (PE) of Johkasou

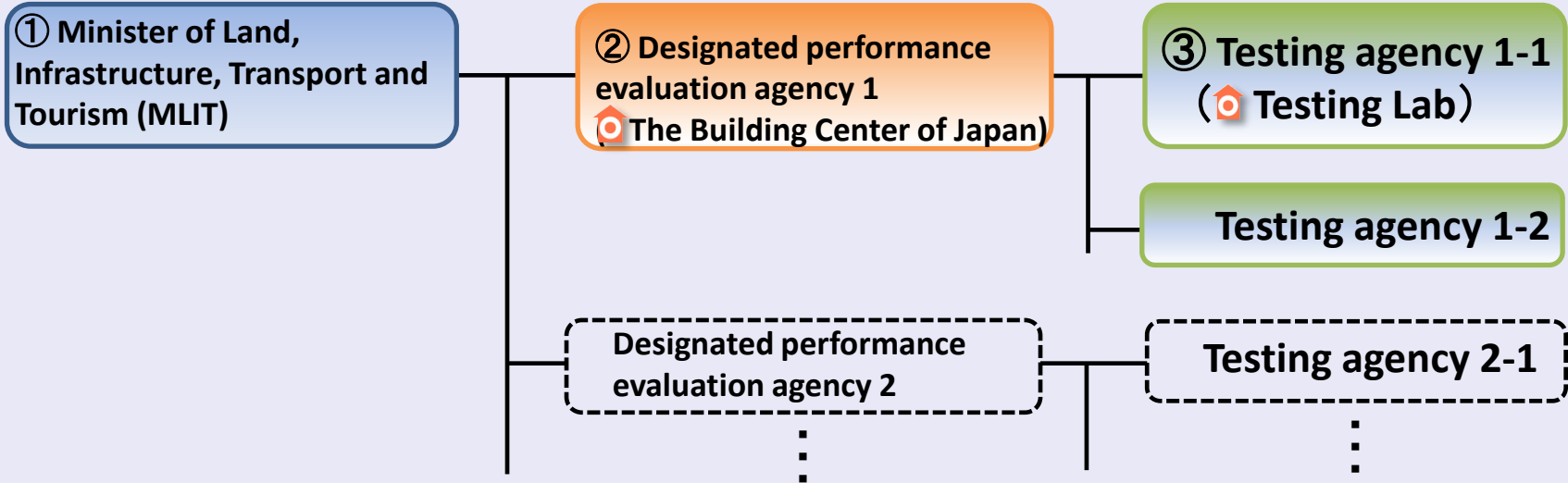


Example of PE estimation

Category	Building use			Number of user for designing (PE)		
				Formula	remarks	
2	Living accommodation	a	Individual house	$A < 130\text{m}^2$	$n=5$	n: PE A: total floor area(m2)
				$130\text{ m}^2 \leq A$	$n=7$	
		b	Residential complexes		$N=0.05A$	n: PE However, if n per household is 3.5 or less, n per household will be 3.5 or 2 (only applies when a household consists of only one room), and if n per household is 6 people or more, it will be 6 people per household. A: total floor area(m2)
		c	Loading house and dormitory		$n=0.07A$	n: PE A: total floor area(m2)
	d	nursery homes		$n=P$	n: PE P: occupancy load limit (person)	

Johkasou performance evaluation test and Ministerial Certification

Relationship between agencies involved in obtaining ministerial certification



① Minister of Land, Infrastructure, Transport and Tourism
Issuance of Ministerial Certification

② Designated Performance Evaluation Agency
An agency that specifies test methods, examines test results conducted in accordance with those methods, and evaluates performance.

③ Testing Agency
An agency that performs tests in accordance with the test methods (methods for evaluating the performance of johkasou) specified by the designated performance evaluation organization.

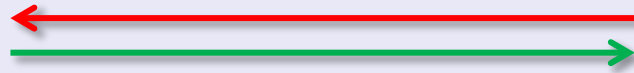
Johkasou performance evaluation test and Ministerial Certification

Ministerial Certification Procedures

Step 1: Testing

Testing agency
(Testing Lab)

① Application for the johkasou testing



Issuance of test report

Tests will be conducted for approximately 6 to 12 months in accordance with the septic tank performance evaluation method.

Step 2: Performance evaluation

Designated performance evaluation agency
(The Building Center of Japan)

Application for the evaluation (Test report attached)



Issuance of performance evaluation report

A committee will be set up within the evaluation agency to evaluate the performance of the johkasou applied for.

Step 3: Ministerial Certification

Minister of Land, Infrastructure, Transport and Tourism (MLIT)

Application for the Ministerial Certification (Performance evaluation report attached)



Issuance of the Ministerial Certification

Manufacturer
(Johkasou manufacturer)



Johkasou factory
Source: HP of A company

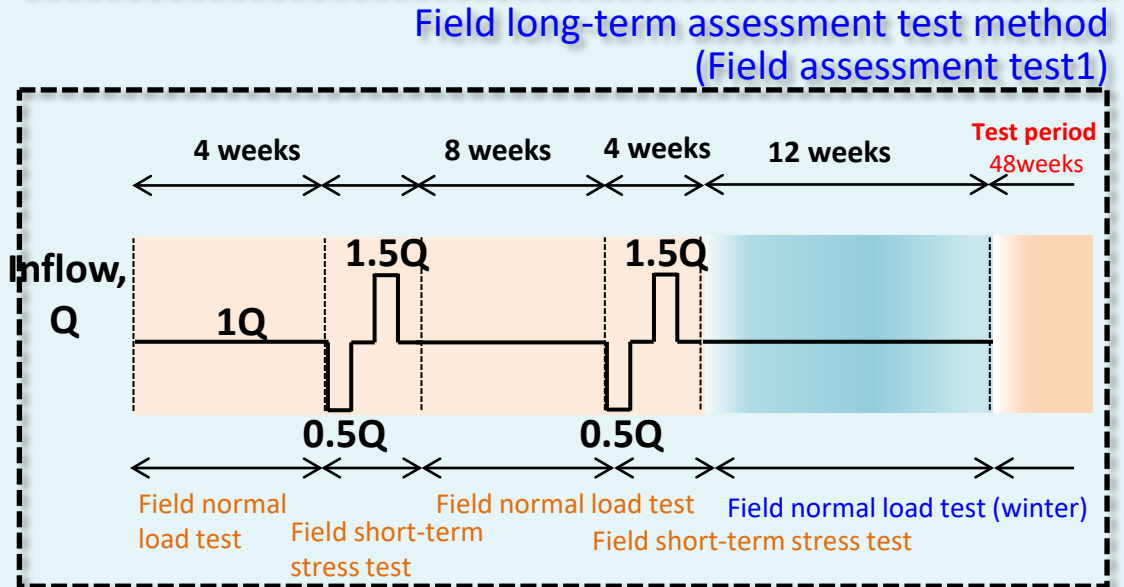
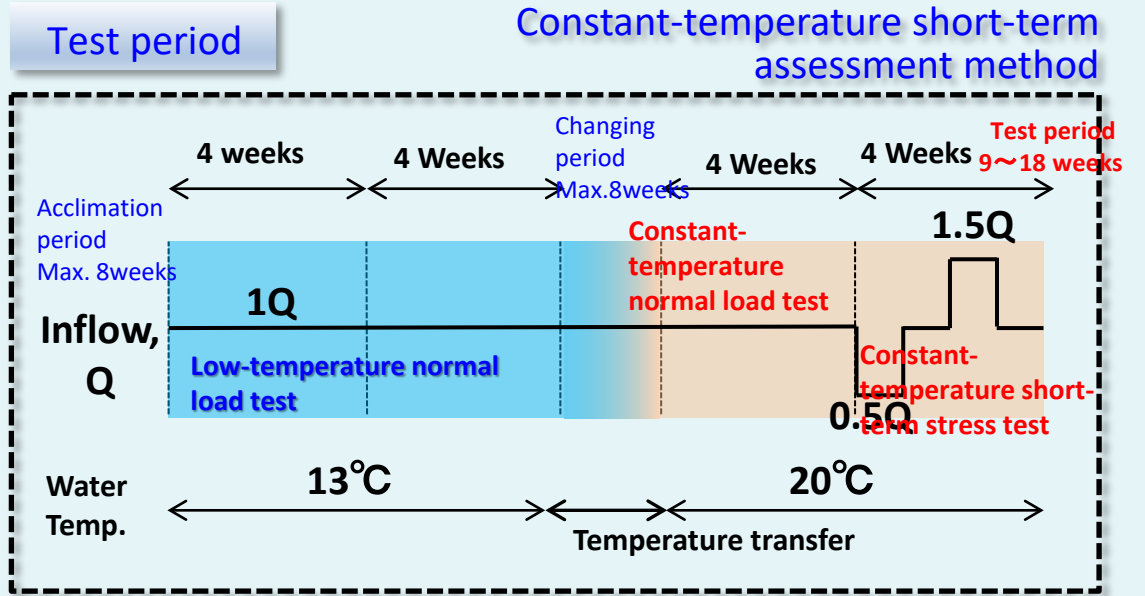
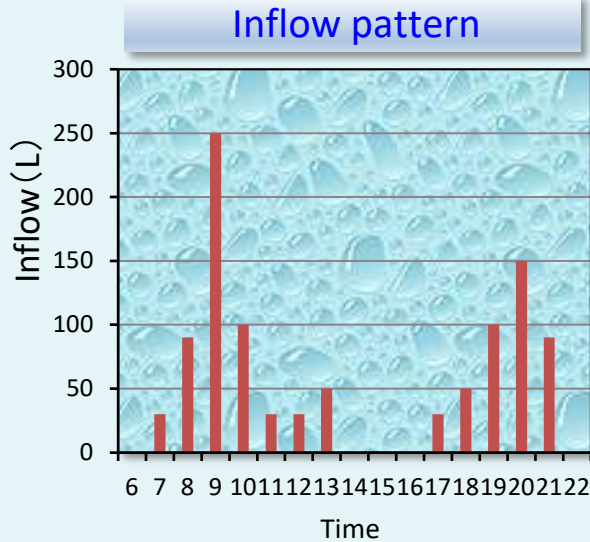
Product development



New johkasou

Test for johkasou performance evaluation

Step 1: test



Test for johkasou performance evaluation

Test procedure flow

Testing agency	Applicant
Preliminary meeting	
	Application for the test
Reception	
Submission of documents with questions and opinions	→ Confirmation
Check the test site and final meeting on test conditions	
Installation of the johkasou for test	
Test start	
Operation and Maintenance	
Weekly - monthly report	→ Confirmation
Test end	
Remove the johkasou for test	
Issuance of test report	

Test for johkasou performance evaluation

Test application documents

1. Test application form

Appendix 1: Confirmation document for setting test conditions for johkasou testing

Appendix 2: Test tank check items


Appendix 3: Maintenance and inspection checklist

2. Attached documents



- ① Test tank drawings (including detailed drawings) for testing
- ② "Design standards" for the johkasou for which a performance evaluation application is planned, test tank design basis, and a comparison table of actual test tank values
- ③ "Manual of Operation and Maintenance" for the johkasou for which a performance evaluation application is planned
- ④ "Manual of Operation and Maintenance" for the test tank
- ⑤ Management and performance evaluation documents
- ⑥ "Outline of construction method" for the johkasou for which a performance evaluation application is planned
- ⑦ "Structure and function explanation" for the johkasou for which a performance evaluation application is planned
- ⑧ "Standard design specifications table" for the johkasou for which a performance evaluation application is planned
- ⑨ "Specifications of materials, materials, and mechanical equipment" for the johkasou for which a performance evaluation application is planned
- ⑩ "Standard design drawings" for the johkasou for which a performance evaluation application is planned
- ⑪ Carry-in and -out plan
- ⑫ Others

The performance evaluation test of Johkasou

Test report


 BCCJ 認定—J—T 評価機関
 平成 27 年 4 月 14 日


試験成績書



 様

試験成績のありました件につき、下記のとおり報告します。

一般財団法人 日本建築センター
 理事 員 西 野 仁

— 記 —

1. 科 名：
 / 合併型電浄化槽/汚物処理性能
2. 性能評価方法：
 「浄化槽の性能評価方法」及び「浄化槽の性能評価方法補則」
3. 選択された試験方法、試験方式及び試験条件：
 【恒速強制評価試験方法】（1基）
 【管理性能評価方法】
 なお、試験条件の詳細については、浄化槽試験の試験条件設定に係る指図に係わる書類等により、試験依頼書が設定した条件による。
4. 試験結果：
 別添による

 一般財団法人日本建築センター
 The Building Center of Japan

The performance evaluation test of Johkasou

Step 2: performance evaluation

Flow of performance evaluation

Application



Review committee
【Reception】(Hearing)



Subcommittee 【Review】
several times



Review committee 【Report】



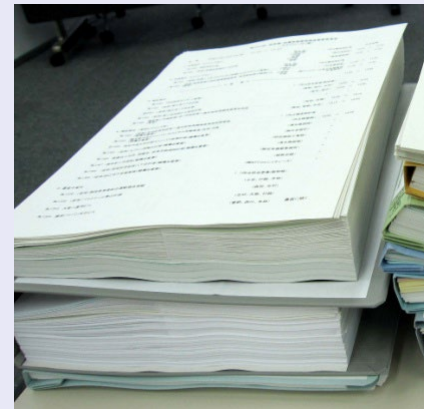
Issuance of performance
evaluation report

Review committee

Review by academic experts



Documents for review



The performance evaluation test of Johkasou

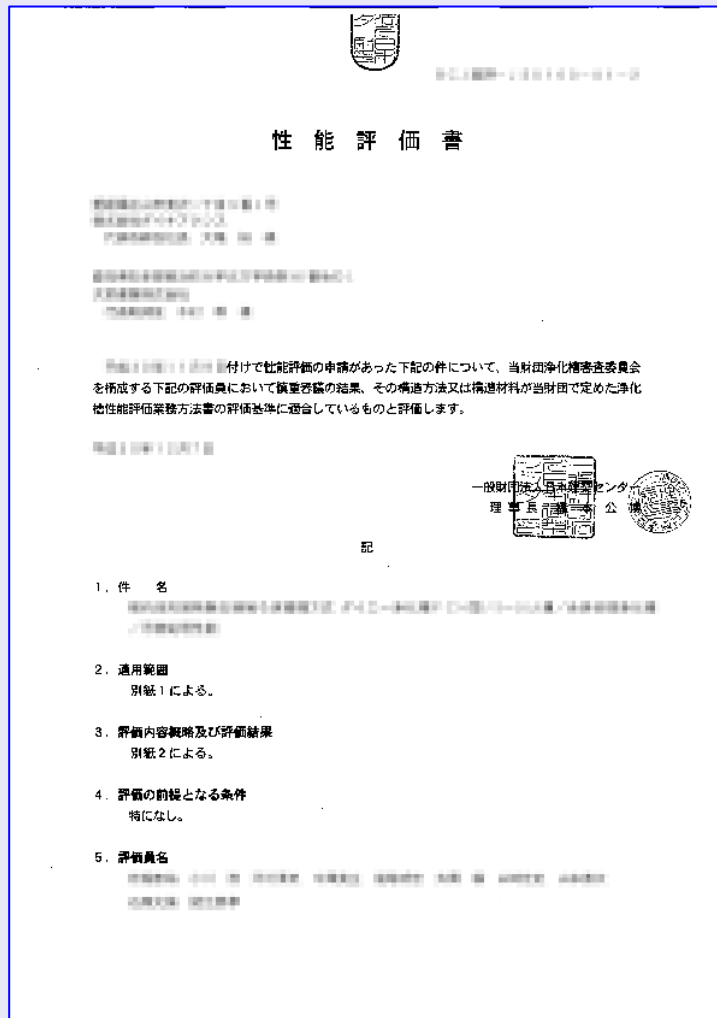


Performance evaluation application documents

1. Performance evaluation application form
2. Digest version (explanation of test tank and processing method for hearing, summary of test results)
3. Attached documents
 - ① Overview of construction method
 - ② Structure and function description
 - ③ Design criteria
 - ④ Standard design specifications table
 - ⑤ Specifications of materials, materials and machinery equipment
 - ⑥ Standard design drawings
 - ⑦ Technical documents
 - ⑧ Drawings of test tank used in test
 - ⑨ Test result report (test report)
 - ⑩ Manual of Operation and Maintenance

The performance evaluation of Johkasou

The performance evaluation document



日本建築センター
一般財団法人日本建築センター

性能評価書

建築確認申請案件の性能評価に関する件
建築確認申請センター
〒100-0001 東京都千代田区千代田 1-1-1

建築確認申請案件の性能評価に関する件
建築確認申請センター
〒100-0001 東京都千代田区千代田 1-1-1

当財団が所管する建築物の性能評価に関する件について、当財団浄化槽審査委員会を構成する下記の評価員において審査の結果、その構造方法又は構造材料が当財団で定めた浄化槽性能評価業務方法書の評価基準に適合しているものと評価します。

発行：平成27年12月1日

一般財団法人日本建築センター
理事長 高橋 公博

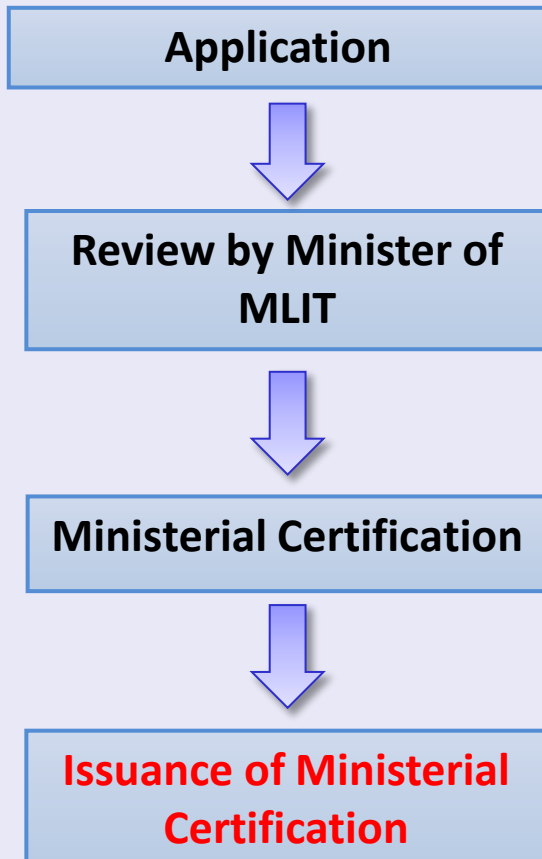
記

1. 件名
浄化槽性能評価業務方法書の性能評価に関する件
（建築確認申請案件）
2. 適用範囲
別紙1による。
3. 評価内容概略及び評価結果
別紙2による。
4. 評価の前提となる条件
特になし。
5. 評価員名
評価員名：小川 誠 田中裕樹 佐藤敏彦 横山清史 清水 誠 藤野祥史 山田清樹
出版文庫：国土交通省

Minister certification of Johkasou

Step 3: Ministerial Certification

Flow of Ministerial Certification

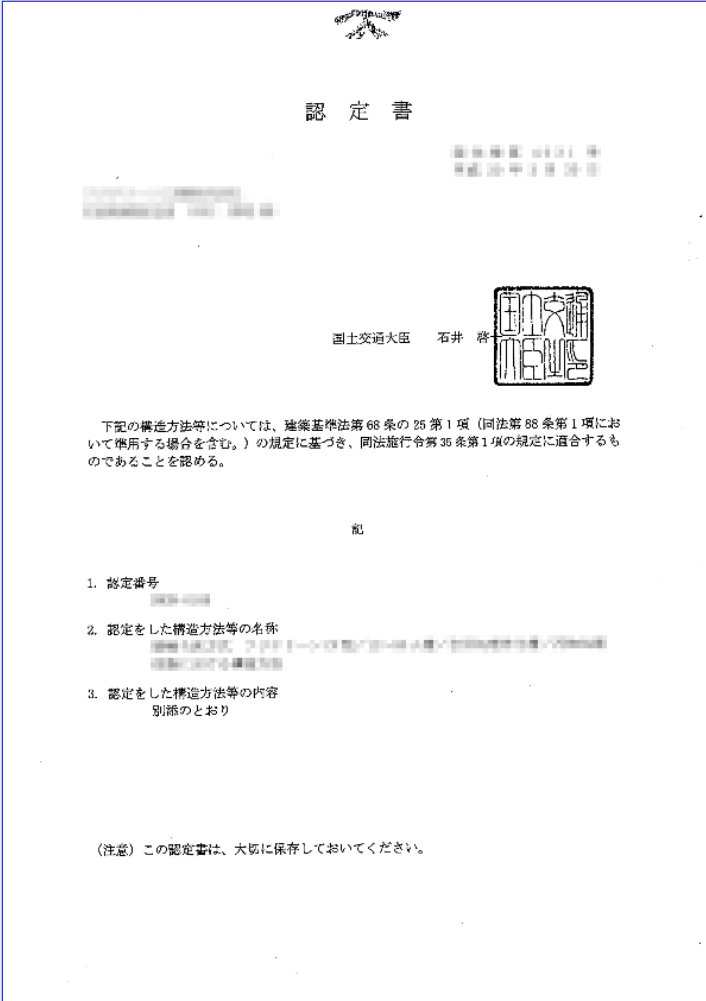


Minister certification application documents

1. Application for certification of construction method, etc.
2. Performance evaluation report prepared by the designated performance evaluation organization
3. Reference materials
 - Performance evaluation application form (copy) and attached documents
- ① Overview of construction method
- ② Structure and function description
- ③ Design criteria
- ④ Standard design specifications table
- ⑤ Specifications of materials, materials, and mechanical equipment
- ⑥ Standard design drawings
- ⑦ Technical documents
- ⑧ Drawings of test tank used in testing (including detailed drawings)
- ⑨ Test result report (test report)
- ⑩ Construction instructions
- ⑪ Maintenance instructions
- ⑫ Company profile

Minister certification of Johkasou

Ministerial Certification



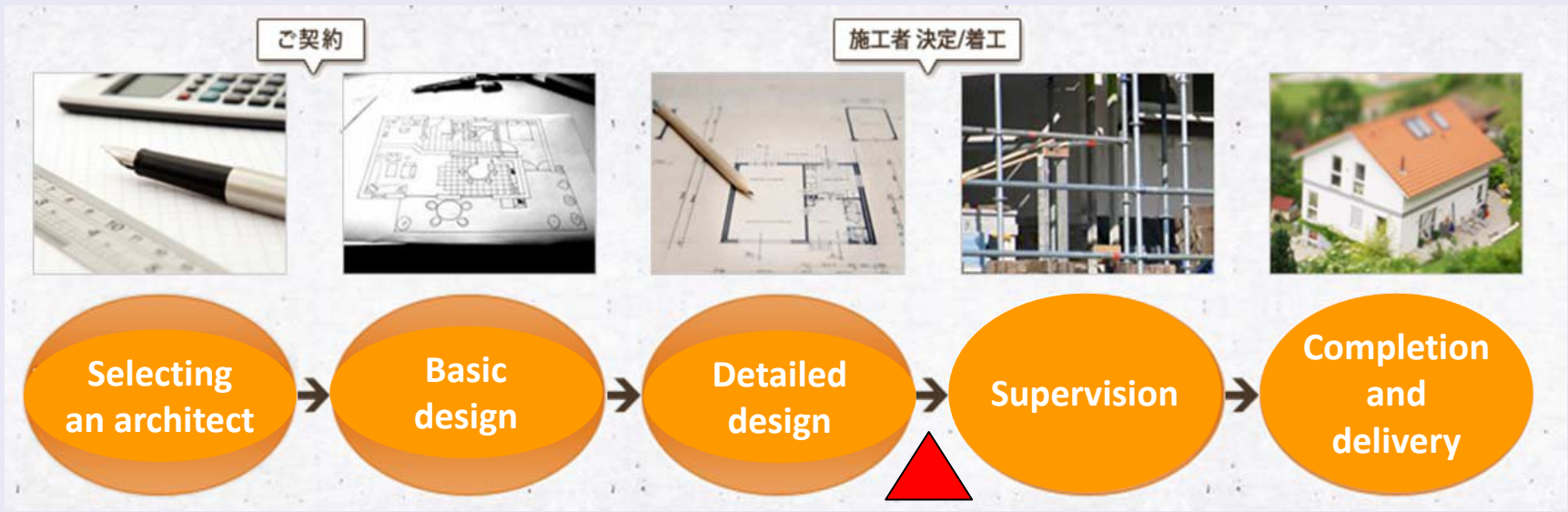
Procedures for johkasou installation

Procedures for johkasou installation

1. When installing a johkasou along with a confirmation application, etc.
 - ① When submitting a confirmation application to the building official
 - ② When submitting a confirmation application to a designated inspection agency
2. When installing or modifying a septic tank without a confirmation application

Procedures for johkasou installation

What is a confirmation application?



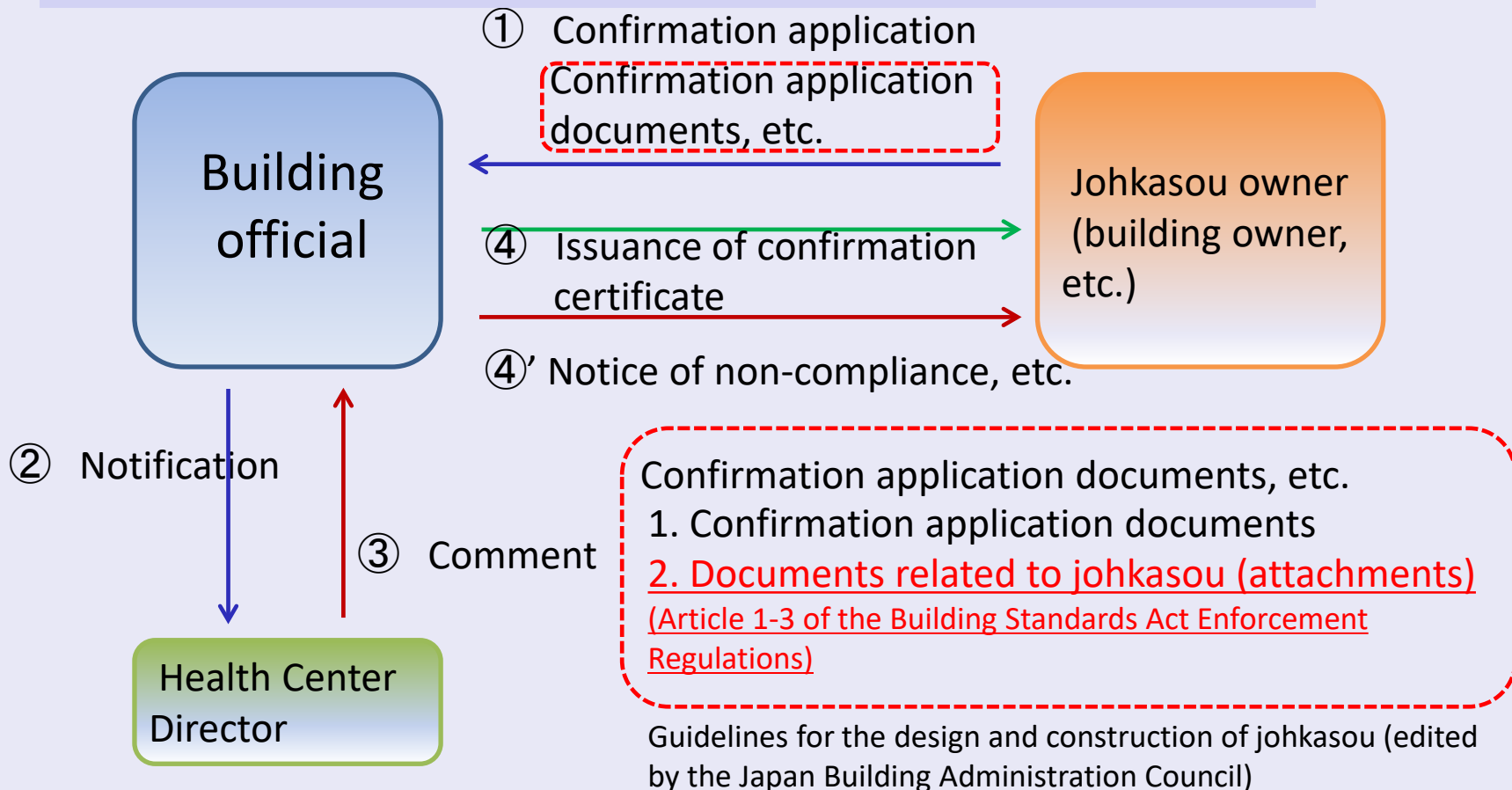
Building confirmation application

According to the Building Standards Act, buildings above a certain size are required to submit a "Building Confirmation Application" (confirmation of compliance with the Building Standards Act) before construction begins.

Procedures for johkasou installation

When installing a johkasou following a confirmation application, etc.

When submitting a confirmation application to the building official



2. Documents related to johkasou (attachments)

- ① Floor plan of johkasou
- ② Calculation of number of user for design
- ③ Shape, structure and size of johkasou
- ④ Others
 - a Floor plan of the area where the johkasou to be installed
 - b Floor plan, layout and indoor/outdoor drainage piping of the building where the johkasou to be installed
 - c Floor plan, layout and structural drawing of the johkasou
 - d Specifications of the johkasou (including capacity calculation, structural calculation and electrical sequence)
 - e Documents clarifying the treatment process of the johkasou
 - f Discharge route, discharge destination, etc.
 - g Copy of the certification pertaining to the certification under Article 31, Paragraph 2 of the Law, copy of the certification under Article 35, Paragraph 1 of the Order

(Law: Building Standards Act, Order: Building Standards Act Enforcement Order)

Procedure regarding installation Johkasou

Confirmation certification

第十五号様式（第三条の四関係）（A4）

建築基準法第6条の2第1項の規定による
確認済証

建設省 建築基準法第6条の2第1項
確認済証 様式（A4）

建築基準法第6条の2第1項
確認済証 様式（A4）



下記による計画は、建築基準法第6条第1項（建築基準法第6条の4第1項の規定により読み替えて適用される同法第6条第1項）の建築基準関係規定に適合していることを証明する。

記

1. 建築場所、取壊場所又は築造場所

（所在地は建築地の所在地又はその所在地を記す）

2. 建築物、取壊設備若しくは工作物又はその部分の概要

- 1) 建築物の名称
- 2) 主要用途
- 3) 工事種別
- 4) 延べ面積

（建築物の名称、用途、種別、延べ面積等は、建築基準法第6条の2第1項の規定により読み替えて適用される同法第6条第1項の建築基準関係規定に適合していることを証明する。）

- 5) 甲種棟数
- 6) 主たる建築物の構造
- 7) 主たる建築物の階数

（甲種棟数、主たる建築物の構造、主たる建築物の階数は、建築基準法第6条の2第1項の規定により読み替えて適用される同法第6条第1項の建築基準関係規定に適合していることを証明する。）

3. 確認を行った確認検査員氏名

（氏名、資格、住所、職名）

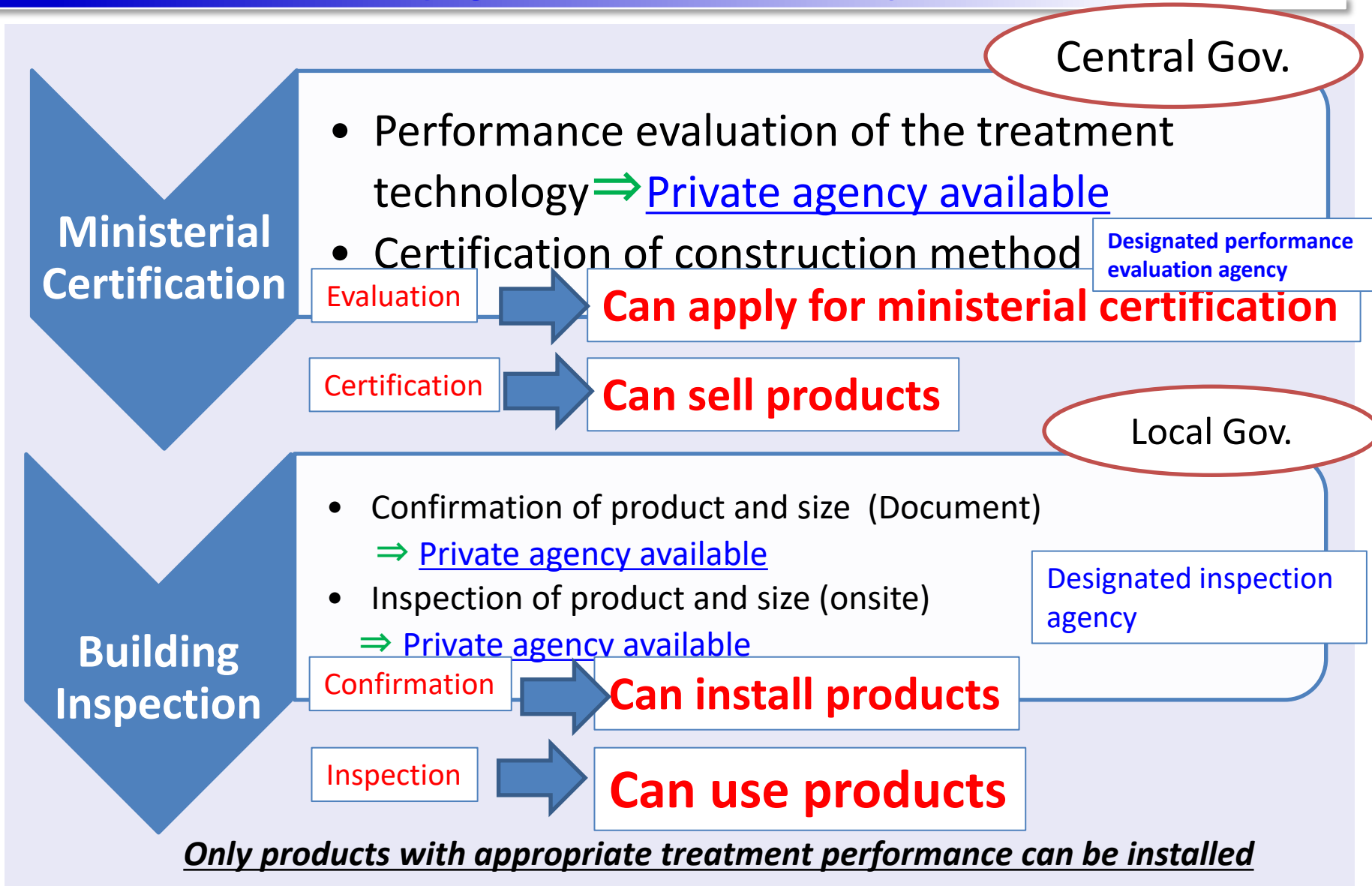
4. 適合判定通知書の署名 該当なし

5. 適合判定通知書の交付年月日 該当なし

6. 適合判定通知書の交付者 該当なし

（注意） この証は、大切に保存しておいてください。

Japan's johkasou performance evaluation system (up to installation)



A system that guarantees the performance of johkasou at the time of installation and after installation

Johkasou installation

- Technical standards for johkasou construction
- Registration for johkasou construction business (prefectural governor)
- Appointment of Johkasou Installation Worker

Johkasou Act (Articles 6, 21-34)

OM of Johkasou

- Technical standards for johkasou operation and maintenance
- Registration for johkasou operation and maintenance businesses (prefectural governor)
- Appointment of Johkasou Operator

Johkasou Act (Articles 8 and 10), Enforcement regulations for the Johkasou Act (Articles 2 and 6)

Legal Inspection

- Water quality testing after installation (for 5 months from 3 months after use begins)
- Regular testing (once a year)
- Conducted by an inspection agency designated by the prefectural governor

Johkasou Act (Articles 7 and 11), Enforcement regulations for the Johkasou Act (Articles 4)



Thank you for your attention