FOLLOW-UP COOPERATION

ON

THE PROJECT FOR IMPROVEMENT

OF

INTERNATIONAL COOPERATION AND TRAINING CENTER

IN

LAO PEOPLE'S DEMOCRATIC REPUBLIC

Interim Report

August, 2015

Japan International Cooperation Agency (JICA)

Azusa Sekkei CO., LTD.

GL
JR
17-012

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1. Background and the objectives of the project

1-1 Background of the project

International Cooperation Training Center (ICTC) located in Vientiane, the capital of Lao People's Republic (hereinafter referred to as ng Center (ICTC) located in Vientiane, Grant Aid project in 2004. It was observed in the follow-up evaluation conducted in 2007 that the facility has been utilized not only for governmental trainings but also private sectorsreinafter re The number of users has been increased with the promotional efforts by ICTC. The evaluation was highly marked as the facility and the equipment are highly utilized as originally intended.

On the other hand, since the rainy season of 2014, a number of water leakage problems have been observed. Japan International Cooperation Agency (JICA) conducted an on-site survey in December 2014, and conjectured the following causes of the leakage.

1. The waterproof membrane is not tacked in properly to the rim of roof drains.
2. The edge of waterproof membrane is not fixed and left loose.
3. There is water trapped between the waterproof membrane and the concrete roof slab.
4. There is no control joint on the parapet, which could be causing cracks due to the concrete and mortar shrinkage. Also other cracks on interior and exterior walls can be observed possibly caused by this leakage.

Besides the rain water leakage, the water pumps are having control problems and part of Audio Video equipment cannot operate properly.

As for the water leakage, the warranty period of waterproof membrane (10 years) by the roof contractor has been already expired. It seems technically difficult for the Laos counterpart to identify and solve the problem. It is concerned that the further leakage would extend the problems to other equipment in the facility.

Laos government will be the host nation of ASEAN meetings in 2016, and this facility is scheduled to be used (in June, August, and October) to hold the meetings. Timely repair of the facilities is urgently needed to prepare for the meetings. With this background, the Institute of Laos Foreign Affairs (IFA) requested a Follow-up cooperation (F/U) to restore the functionality of the facility and equipment.

Responding to the request, it is decided to conduct a survey by the JICA survey team led by Mr. Yukinari Tanaka, Deputy Director of Grant Aid Project Management Division 1 of Financial Cooperation Implementation Department. This inception report has been prepared to explain Japanin Grant Aid scheme, the characteristics of the survey, objectives and methods of the survey, and to confirm mutual understandings regarding basic items of the project. This

project is composed of the survey on restoration methods (F/U Survey) and the tender process assistant work, and the construction supervision work. The actual restoration construction work is intended to be procured by JICA office in Laos separately from the local contractors.

1-2 Objectives of the project

The purpose of this survey is to facilitate the valuable use of ICTC in the Saysetta district of the capital city, built under Japanese ODA by gathering necessary information on the water leakage through the roof and wall of the facility and by establishing a design for restoration works. The actual repair construction work is intended to be procured by local JICA office separately from local contractors, while the consultant under this project will assist the tender and carry out the construction supervision.

1-3 Subject facility of Survey

- International Cooperation and Training Center main building (RC, two stories, floor area 4,020.7 ㎡)
- The water proofing membrane on the flat roof (approx. 1,300 ㎡) which appears to be a cause of the reported leakage.
- The defected AV equipment and its installation conditions.

（1）Subject Site: Number 13 Road Phonphanoun Vil, Saysetta district, Vientiane

（2）Counterpart: Ministry of Foreign Affairs, Institute of Foreign Affairs(IFA)

（3）Past related project by Japanese government: “Improvement work for International Cooperation and Training Center” Japan Grant Aid, 2003-2004

2. On-Site Survey Results

It is confirmed that the facility is utilized well in general, and the structure is constructed according to the design drawings to have enough structural strength. Also, the previously concerned seismic damage was not observed at all. Due to a lack of operational cost and skills, any regular maintenance procedure has not been properly taken, leading to the expansion of damages on the roof water proofing membrane and the exterior wall cracks.

Same situation applies to the equipment. The defected parts have been left unrepaired, leading to further damages.

As for the management of equipment, many documents regarding the maintenance and records have been lost due to the change of facility operator from the Prime Minister's office to Institute of Foreign Affairs (IFA) two years ago. Only three submittals of construction report were found, which was supposed to be submitted to the JICA Laos office every three months. Apparently the result of the soft component was not transferred properly. The facility, however, is managed to be in operation with the remaining equipment and additionally procured equipment by ICTC, and no severe defect was observed.

2-1 Facility Operation

2-1-1 Utilization of ICTC

According to the post-project evaluation conducted in 2007, the facility had been used for 302 days for conferences and trainings with approximately 81,000 total attendants during the period from July 2004 to October 2007. The original plan aimed to have 270 days of conferences with 28,700 total attendants in two years from the completion (meaning 2005). Considering the fact that the operator changed two years ago in 2012, the target originally set for 2005, two years from the original opening, can be applicable for 2014 target, and the target is generally met as shown in the following table (Table 2-1-1).

Now that the facility is operated under the Ministry of Foreign Affairs, it is used for international conferences not only hosted by MoFA but also other ministries such as the Ministry of Health, although more often used for rookies trainings, local staff training classes and workshops for MoFA. Due to the price range that is cheaper than other conference spaces in private hotels, the facility is used for training classes for private companies as well. These instances show that the facility is well utilized to achieve the original objectives to promote international and local cooperation.

Table 2-1-1 Number of Facility Users（2011～2014）

Year	Type of events	No. of Mtg. (1)	Attendants (2)	Per Mtg. (2)/(1)
2011	Conference, Seminar, Training, etc.	181	15,991	88
2012	Conference, Seminar, Training, etc.	179	14,181	79
2013	Conference, Seminar, Training, etc（No charge in-house staff trainings）	118 （45）	8,750 （2,250）	74 （50）
2014	Conference, Seminar, Training, etc.	236	28,222	119

2-1-2 ICTC Management Cost

In 2014, ICTC had the revenue of 391,600,000 kips (USD 48,089) and the expenditure was 324,000,000 kips (USD 39,788). The facility could be financially self-supporting as it had 67,600,000 kips (USD 8,301) profit. (As for 2013, the balance fell into negative as almost half the facility use was dedicated to the in-house staff training for which rental fee could not be charged. (Re: Table 2.1.2))

The utility costs have increased more than the original plan in 2002 (Re: Table 2-1-3). This is because the cost of electricity has increased about two and a half times, and the cost of city water has increased about five folds since 2002. Currently the number of events and IFA budget in 2016 are expected to increase 4.8% and 16.6% respectively compared with 2015 numbers. (Re: Table2-1-4)

As described above, ICTC is financially managed well as it is positioned within national policy projects. Although a part of expense is paid from the revenue, there should not be any financial concern as all the necessary expenditure will be paid by MoFA.

Table 2-1-2 Operational/Maintenance Cost（2013～2014）

	2013（Kip）	2014（Kip）
1.Operational/Maintenance Cost	**270,800,000**	**324,000,000**
（1）Operational Cost	206,800,000	240,000,000
1）Facility/Equipment Operation	185,800,000	218,000,000
① Electricity	150,000,000	180,000,000
② Water	20,800,000	22,800,000
③ Communication	1,800,000	2,000,000
④ Gas	0	0
⑤ Petroleum for vehicles	13,200,000	13,200,000
2）Maintenance Cost	21,000,000	22,000,000
① Facility/Mechanical System/Equipment Maintenance	15,000,000	15,000,000
② Consumables (incl. pamphlet prints.）	6,000,000	7,000,000
（2）Personnel Expenses	64,000,000	84,000,000
2.Operation Budget	**180,000,000**	**391,600,000**
（1）Revenue from the rent	150,000,000	341,600,000
（2）IFA Subsidiary	30,000,000	50,000,000
2-1 Total	**-90,800,000**	**+67,600,000**
Other repair expenses（※paid by MoFA）	80,000,000	-

Table 2-1-3 Utility Costs in Vientiane

	2002	2011	2014	2015
Electricity (kip/kWh)	400/kw	N/A	972/kw	1058/kw
Water (kip/m3)	600/m3	2,700/m3	2,884m/3	2,970/m3

Table 2-1-4 Facility use and budget prediction

Year	Type of Event	No. of Event.（1）	No. of Attendant（2）	Attendant per event（2）/（1）	IFA Budget (Kip)
2015	Conference, Seminar, Training, etc.	286	30,930	108	60,000,000
2016	Conference, Seminar, Training, etc.	300	30,000	100	70,000,000

2-2 Operation and Maintenance Capability

When the operator role was transferred to IFA two years ago, it is seems that the hand over was not conducted properly. Maintenance records that used to be registered when the post-project evaluation was conducted in 2007 were not found. Although the number of personnel for ICTC is registered as 29 (Officer:15, Staff:14), actual daily operation is carried out by 14 to 15 people. When needed more for events, other personnel would be brought in from IFA, or staffs would be hired from the private event company. The current staff of the center has not been trained to manage the facility, for example by creating an annual maintenance plan, as the IFA is currently taking the tasks such as finding events and budgeting for the operation.

Table 2-2-1 ICTC Original Staffing（in 2002）

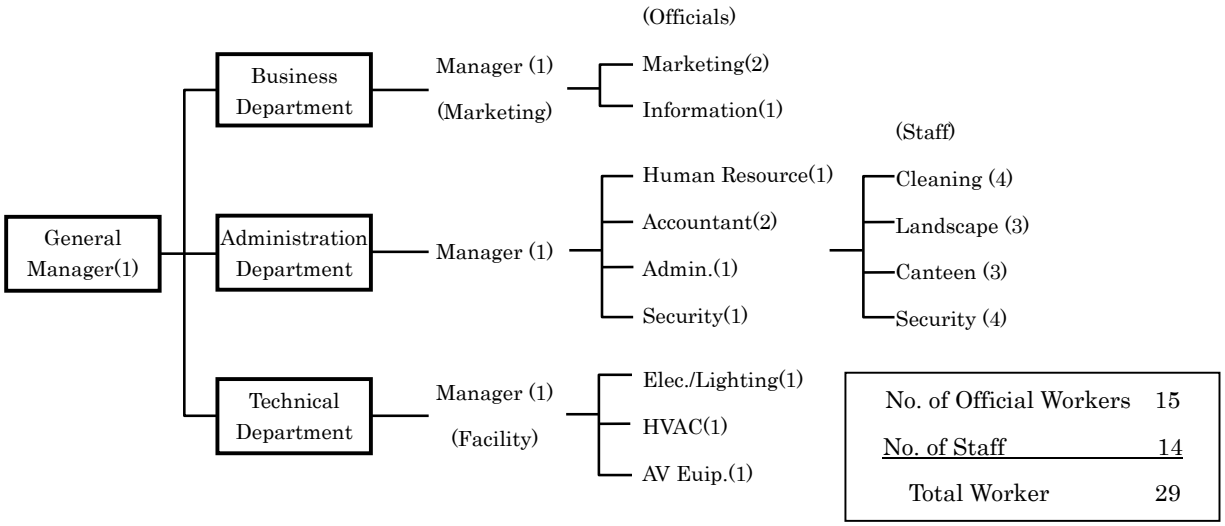
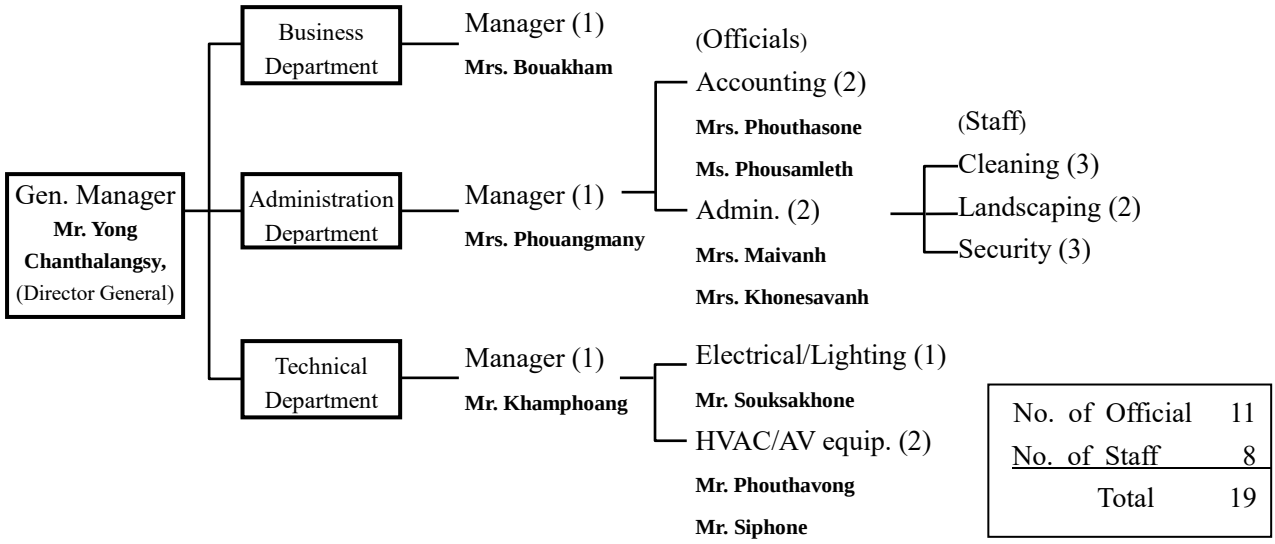


Table 2-2-2 ICTC Current Staffing （2015 May）



2-3 Current conditions of the facility and the problems

Summaries of the survey results for each building part are shown below. (Refer to "Appendix_4_Current Problems" for details.)

2-3-1 Survey Summary (Architecture)

A−1. Exterior Wall

- Numerous cracks along the joints between the RC beams and concrete block walls, and between the RC columns and the concrete block walls are occurred due to the shrinkage and dry-out of mortar. The hair cracks since the completion of original construction are expanding as a part of aging deterioration typically caused by the seeping of rain water and the sun exposure. The width of the most cracks is less than 1mm, and more likely 0.2 to 0.5 mm. Some cracks, however, are bigger and causing the mortar to break-off. Traces of rain water leakage through those cracks were observed.
- The main cause for the issue is that there are no control joints between the different material to absorb the dry-out and deferent shrinkage of deferent material underneath the paint. Also there are not enough control joints on the relatively large mortar finish wall area. It is considered that the issue expanded due to the lack of proper treatment when the crack was small on the initial stage. (No structural crack caused by earthquakes was observed.)

<Scope of Work>

After building temporary scaffolding around the exterior walls, the defects such as delamination of mortar shall be inspected throughout the entire walls. The defected area shall be removed and filled with mortar or resin to repair the substrate. After the repair of the substrate, the walls shall be finished with elastic spray paint. New control joints (W25mm and D10 mm) shall be created along the different substrate material especially between the concrete block and the reinforced concrete. The joint shall be filled with sealant and painted with the elastic paint.

A−2. Waterproof membrane on the flat roof

- Overall deterioration, especially the edges, of the waterproof membrane is severe. Air pockets and tears at some locations are observed. Also, some part of the asphalt is hardened due to sulphuration. Overall renovation is needed.

<Scope of Work>

Leaving the existing water proofing membrane (except the area where the roof slab underneath needs to be repaired), new asphalt water proofing membrane shall be covered including top of the parapet. After finishing the roof membrane work, high reflective paint shall be applied to increase the durability of the membrane and to increase the insulation of

the building. The water proof membrane shall be installed by a special water proofing contractor.

A-3. Sloped Roof

- A slate roof tile is broken and missing at the verge of the big sloped roof. (possibly caused by a twist due to the strong upward wind.)
- A slate roof tile is broken and missing on the roof of the entrance canopy. (caused by a careless walking on the roof for maintenance.)

<Scope of Work>

Replace the defected roof tile.

A-4. Soffit Ceiling

- Broken panels and numerous cracks on the cement soffit board were observed.
- Causes are; upward wind strongly blowing against the soffit, and the wide spacing of the framing that is causing the crack on the cement boards which have been deteriorated due to the aging.

<Scope of Work>

Replace the defected board with more elastic material such as Flexible board or Silicate board, and apply paint finish. Along the extended rake of the roof where distortion may occur, reinforcement of the substrate will be studied to stand against strong winds for future climate change.

A-5. Pedestrian Pavement

- The paving tiles around the drop off area at the main entry are unevenly sunk or broken.
- The cause is the occasional car parking on the tiles which are only meant for pedestrian use and the erosion of the compacted sand underneath.

<Scope of Work>

Remove the existing pavement tiles, adjust the sand base course underneath, and concrete curbs along the area shall be provided to prevent sand from eroding out. If the vehicles continue to be parked on the area, interlocking type pavement shall be installed.

A-6. Interior Walls

- Cracks on some of the interior walls are occurred.
- The causes are the hair cracks of the finish mortar due to dry-out and shrinkage, and expansion of the cracks due to the water leakage from the roof above.

<Scope of Work>

After removal and cleaning the defected area (refer to attached drawings), puttying the surface and paint in the matching color.

A-7. Ceiling

- Watermarks on some of the ceilings were observed.
- The causes are the rain water leakage and the leakage of condensation water from the air conditioner drain pipes.

<Scope of Work>

If the ceiling is a part of system ceiling, the stained panel can be simply replaced after the water proofing work for the roof is finished. If the stain is due to the air conditioning unit, clean the drain pan and advice the regular maintenance before changing the ceiling panel. If the stain is on the plaster board portion, enough area needs to be replaced with new plaster board. After puttying the surface, paint it in the matching color. (Defected areas are shown in the attached drawings.)

2-3-2 Survey Summary (Building Systems)

M-1.Electrical Room

- There is no ventilation fan for the room and the room temperature tends to rise. Due to the situation, the panel door is kept open. It is concerned that it may cause future problems.
- The two large size grilles (1800x1800) for ventilation are covered up with metal sheets to prevent rain from getting inside. The upper part of the grille is covered with filters, however, the filter is clogged with dust and the room lacks air circulation.

<Scope of Work>

Cleaning of the filter will be required. If more air ventilation is needed, the metal sheet needs to be removed, and either a hood to be added or the grille needs to be replaced with rain-guarded grilles.

M-2.Pump Room

Water pump

- The water pumps cannot be operated alternatively.
- It is because one of the timers is broken and is detached from the control panel.

<Scope of Work>

After replacing the timer, inspection and test drive shall be conducted.

Fire pump

- The pressure gauge of the fire pump is filled with water. (The water is brown due to the rust of steel parts around.).
- The joint of piping is loose and the rubber washer is not tight enough.

<Scope of Work>

The pressure gauge and the rubber washer shall be replaced, and the piping shall be reconnected. After the repair, inspection and test drive shall be conducted, and the operation shall be instructed to the staff.

The fire pump is special equipment which requires special maintenance and related costs. If it is difficult to provide the technical staff to maintain, it shall be considered, as an option, on removing the pump after discussing with the counterpart since there is no open fire used in the facility and no local fire marshal requirements.

M-3.Toilet

- There are some water closets that can't be flushed due to the defects of the flush valve and the water tank.
- The flush valve can't be closed due to objects stuck at the valve. As for the defect of water tanks, attachment screws are broken.

<Scope of Work>

The parts need to be replaced.

M-4.Septic Tank

- Even though no maintenance has been conducted for the last ten years, there is no complaint regarding odor or polluted water.
- One of the manhole covers is broken. Other covers are rusted and could not open.
- The followings are the speculations of the reasons for the septic system is working even though the tank has not been maintained for ten years.
  1. The volume of decomposed feces is small because the water closets are scarcely used, and the decomposition of organic matter is facilitated due to the hot weather. Hence the tank is never filled full without vacuuming.
  2. The flow to the sewer from the tank was functioning well because the water level of the sewer was low as the survey was conducted at the end of dry season.

The quality of released water from the septic tank was not tested to evaluate if it meets standards under this survey.

<Scope of Work>

Under this F/U project, it deemed sufficient to advice the operator to conduct the regular maintenance and water quality testing, since there has been no major issues for the last ten years.

M-5.Other Items

- Electric power and communication line wiring

To compensate the lack of power supply, and to bring new communication lines, the cables for power from the outside and for additional communications are carelessly laid exposed throughout the facility. Although a number of extra conduits were prepared to accommodate such increase of cables in the original design, the intent was not transferred to the counterpart. Also, there is no special opening to bring in cables from the outside. The cables from the outside is brought along the exterior wall onto the roof, and through the exterior door opening with the door kept open. Due to the situation, water leakage through the door opening during rainy season is concerned.

2-3-3 Survey Summary (Equipment)

The operating agency has been changed since two years ago, and there is no technician who can maintain the procured equipment within the current staffing. The procured equipment is fairly simple as a conference communication system compared with the professional models. Non-professional person can utilize it once he/she is trained. It is, however, regarded as special equipment unlike regular home appliances, and proper maintenance has not been conducted. Also the local procurements of spare parts and consumables for such special equipment are very difficult.

<Scope of Work>

There are several event/party planning companies who lend special equipment and operators, including some rental of such equipment. Considering the situations, the general policy that repair and augmentation of existing equipment is excluded from the scope of work under this F/U project.

2-3-4 Necessity of Soft component

As mentioned above, proper facility management is not executed as things are managed in a haphazard fashion due to the lack of proper operation training. Although there are the manuals and textbooks created under the original project in the storage, the staff who was trained at that time is no longer with the current operation team.

Under the current situation, technical support to train the staff by a soft component project is needed again to facilitate self-supporting management.

In light of conducting the soft component, the counterpart needs to prepare for the related officers (facility, equipment, manager, one person each), trainees (2 to 3 people for each course), training class room, and at least two laptop computers.

3. Contents of Follow-up Cooperation

3-1 Contents of Follow-up Cooperation

In light of current facility use and the problems, the scope of work under this F/U project is deemed appropriate to follow the attached “Annex_4_Current Problems (Architecture and Equipment)”

3-2 Cost of Follow-up Cooperation

3-2-1 Cost Estimate Conditions

Cost Estimate Standard: ”Preparatory Survey Design/Cost Estimate Manual”(Draft Version 2009,March). Supplement (Civil/Architecture), Appendix (Equipment)

Estimated Month: June 2015 (at the time of local survey I)

Exchange Rate: USD1=JPY121.21 (Average rate b/w March and May, 2015)

Valid until: End of Dec. 2015

Remarks: General items shall be procured locally. Special items can be imported from third country or Japan.

General currency used for the procurement shall be US dollars.

Construction period shall be four to six months.

3-2-2 Rough Estimate

The total cost of construction shall be confidential.

3-3 General Construction Logistics

The following policies regarding the construction are deemed appropriate considering the scope of renovation works under this Follow-up cooperation and the local construction methods and skills.

(1) Construction cost

The construction cost shall be inclusive of all the cost needed to complete the works including banking fees, VAT, withholding tax, etc.

(2) Construction Material

All the construction material used for this project shall be procured locally.

(3) Construction Period

The construction contract needs to be signed by the middle of October 2015 so as to ensure the time for budget approval, selection of general contractor, and to avoid the rainy season (due to the nature of the exterior construction). After the conclusion of the contract, one month for ordering the material and preparation, the construction can be started around the middle of

November when real dry season starts. Considering the scope of construction works, the completion date will be around March 2016.

(4) Tender Process

Public invitation to potential bid tenders

Contractor should be selected through competitive tender process from three companies or more who are pre-qualified with PQ requirements.

The following shall be the conditions for the PQ.

i. The registrations in Laos and as a construction company

Qualified tenderers shall be Laotian construction firms who have a license for construction business required for executing the construction works directly and/or by sub-contracting in Laos.

→Considering the ease of local procurement and future maintenance, the local presence and the registration as a construction firm shall be a pre-qualification condition. In case of Joint Venture, each Partner shall satisfy the requirements stated above.

ii. Financial status

Qualified tenderer shall be in sound financial conditions for the last two consecutive years.

→The condition is to carry out the project in the sound financial status of the contractor. The qualification is certified based on if the company is in sound financial conditions (no deficit) for the last two consecutive years. In case of Joint Venture, each Partner shall satisfy the requirements stated above.

iii. Experience on Japanese ODA construction project

Tenderer shall declare if they have any experience on Japanese ODA construction project either as a general contractor or sub-contractor.

→To meet the deadline, qualified tenderers shall have at least (3) Japanese ODA construction experiences (even as a sub-contractor) with the contract price not less than 60 million Japanese Yen during the last ten years. Or qualified tenderers shall have at least (1) construction work with the contract price not less than 100 million Japanese Yen during the last ten years. In case of Joint Venture, each Partner shall satisfy the requirements stated above.

iv. Experience on similar works

Tenderer shall declare if they have any experience on 1) water proofing membrane works with ten year warranty, and 2) exterior wall repair works, either as a general contractor or sub-contractor for the last ten years.

→To secure proper installation of water proofing works, qualified tenderer shall have the experience on (3) or more similar projects for the last ten years (including as a sub-contractor), also on the exterior wall repair work similar in size (about 30 million Japanese yen). In case of Joint Venture, each Partner shall satisfy the requirements stated above.

v. Number of qualified engineers

Qualified tenderers shall have not less than (15) engineers with related licenses.

→For this construction, it is assumed around five engineers with related licenses need to be on site. It is deemed that ten engineers as support staff in office would be sufficient to deal with unknown circumstances. Hence, qualified tenderer shall have not less than fifteen engineers.

3-4 Maintenance and Management

3-4-1 Maintenance and management staff

Even though the number of staff for ICTC is registered as 29 (fifteen officers and fourteen staffs), the day-to-day activity is carried out by 14 to 15 people. Other staff is brought from either IFA or is hired from private event companies according to the size of events. The outsourcing, including inviting events, is well established as enough budget is prepared by IFA directly. As long as the current situation continues, there is no problem with the current staffing.

3-4-2 Maintenance and Management Cost

As mentioned previously, the cost of maintenance and management are budgeted well as the number of users and the budget of IFA are expected to increase 4.8% and 16.6% respectively in 2016. The 70,000,000 Kips of IFA budget in 2016 is appropriate as long as the current outsourcing can be secured for events.

3-5 Other Remarks

3-5-1 Procurement schedule and tax exemption procedure

Currently the construction is scheduled to start from October when rainy season is over. As for the tax exemption procedures, the details of the construction materials and equipment need to be confirmed. Especially for the material and equipment, normally it cannot be determined before the contractor is decided. Due to the limitation of construction schedule, the facilitation of exemption procedure needs to be discussed such as further specify in the bid document the quantity and products of items that need to be imported.

Members of the Team

Name	Position	Organisation
Mr.Yukinari TANAKA	Mission Leader	JICA Grant Aid Project Management Division 1, Financial Cooperation implementation Department
Mr. Takaaki KIMURA	PM/Renovation Planning	AZUSA SEKKEI CO., LTD.
Mr. Koji NAKAMURA	Sub-PM/Construction Plan/Cost Estimation	AZUSA SEKKEI CO., LTD.
Ms. Ayako KOJIMA	AV-equipment Planning	AZUSA SEKKEI CO., LTD.
Mr. Yosuke OTA	Tender Assistant /Construction Supervision	AZUSA SEKKEI CO., LTD.

Field Survey I

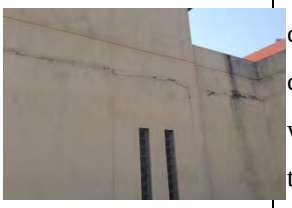
			JICA Mission Leader	PM/Facility Restoration Planning	Sub-PM/Procurement Construction Planning/Cost Estimation	MEP Equipment Planning/AV Equipment Planning
			Yukinari TANAKA	Takaaki KIMURA	Koji NAKAMURA	Ayako KOJIMA
			9days	18days	14days	18days
1	17-May	Sun		HND→BKK→VTE、 Sortiong Information		←to accompany with PM
2	18-May	Mon		Courtesy call of Embassy,MOFA and IFA Discussion on JICA		←to accompany with PM
3	19-May	Tue		Survey of facility		Survey of facility(Equipment)
4	20-May	Wed		Discussion on IFA Survey of facility		Discussion on IFA Survey of facility(Equipment)
5	21-May	Thu		Survey of facility		Survey of facility(Equipment)
6	22-May	Fri	→VTE	Discussion on IFA Survey of facility		Discussion on IFA Survey of facility(Equipment)
7	23-May	Sat	Team Meeting	Team Meeting Sorting Information	HND→BKK→VTE Sorting Information	Team Meeting Sorting Information
8	24-May	Sun	Sorting Information	Survey of facility	Survey of facility	Survey of facility(Equipment)
9	25-May	Mon	Mtg. w/JICA Discussion on the draft Minutes w/IFA Survey of facility	Mtg. w/JICA Discussion on the draft Minutes w/IFA Survey of facility	←to accompany with PM	←to accompany with PM
10	26-May	Tue	Inspection Lao Plaza Hotel, Setthathirath Hospital	Inspection Lao Plaza Hotel, Setthathirath Hospital Mtg. w/ MPI of Minutes Inspection Done Chan Palace Hotel	←to accompany with PM	←to accompany with PM
11	27-May	Wed	Inspection Japan Center Report to the Embassy, JICA	Inspection Japan Center Report to the Embassy, JICA	←to accompany with PM	←to accompany with PM
12	28-May	Thu	VTE→Pakxe→Sekong Survey in Sekong Sekong→Pakxe	Inspection Japan Budokan Survey of facility	Survey of facility	Survey of facility(Equipment)
13	29-May	Fri	Pakxe→VTE Signing of Minutes w/IFA VTE→BKK	Report to the Embassy Signing of Minutes Survey of Local Contractor	Survey of facility Signing of Minutes Survey of Local Contractor	Survey of facility(Equipment) Signing of Minutes Survey of Local Contractor
14	30-May	Sat	→HND	Survey of facility	Survey of facility	Survey of facility(Equipment)
15	31-May	Sun		Sorting Information	Sorting Information	Sorting Information
16	1-Jun	Mon		Survey of facility Signing of Technical Note Report to JICA	←to accompany with PM	←to accompany with PM
17	2-Jun	Tue		Cost Estimation Request to Contractor VTE→BKK	Cost Estimation Request to Contractor Survey of facility	Cost Estimation Request to Contractor VTE→BKK
18	3-Jun	Wed		→HND	Survey of facility	→HND
19	4-Jun	Thu			Sorting Information VTE→BKK	
20	5-Jun	Fri			→HND	

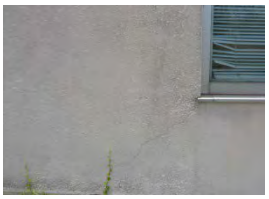
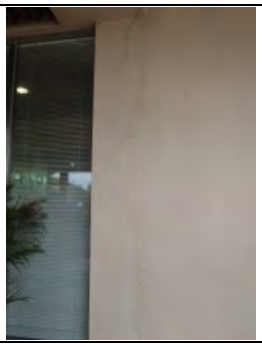
ATTENDANCE LIST

ORGANIZATION	POSITION	NAME
IFA	Director General	Mr. Yong CHANTHALANGSY
	Deputy Director General	Mrs. Vieng Ngeun KHAYKHAMPHITHOUNE
	Director of International Cooperation Division	Mr. Somphay VONGMAHACHACK
	Deputy Director	Mr. Khamla KHOUTLAVONG
	Head of Division	Ms. Phouangmany PHENGKHAMMY
	Academic Official	Mr. Maykham TONGVONGKHAM
	Director of Admin. Division	Mr. Keo OUNPHATHAI
ICTC	Deputy Division	Ms. Buokham SINAVONGPHONE
	Former Derector	Mr. Thonglung SAYAVONG
DIC-MPI	Deputy Director of Division	Ms. Sengaphone SILAPHS
	Technical Officer	Mr. Vilasack XAYAPAT
JICA LAO	Chief Representative	Mr. Yusuke MURAKAMI
	Senior Representative	Ms. Saeda MAKIMOTO
	Representative	Ms. Akiyo MORITA
	Representative	Mr. Kazuyuki KAKUDA
	Procurement	Mr. Mikio KURATA
	Infrastructure Specialist	Mr. Phouthaphone VORABOUTH
	Program Officer	Mr. Viengsavanh Siroonbath
HAZAMA ANDO	General Manager Lao Office	Mr. Toshihiko KANDA
Medical and Education Supporting organization for Asian Children	Architect	Mr. Mitsuru KOIZUMI
VEC	Director	Mr. Phanom PHOMDUANGSY
SAENYAKONE	General Director	Mr. Syxomphou SAENYAKON
MXC	Deputy Director	Mr. Phonesavat THEPTHALA
	Marketing	Mr. Lithideth PHOMPIDA
LAO PLAZA HOTEL	Sales & Marketing Manager	Mr. Junichiro MATSUYAMA
Done Chan Palace Hotel	Sales Executive	Mr. Phetsamone OUDINARATH (Bobby)
SETTHATHIRATH HOSPITAL	Maintenance Department	Dr. Khamphet THAMMAVONG
	General Affairs Department	Mrs. Vilaythong SOULIYAVONG
	General Affairs Department	Mr. Kengsomkieth THAMMA VONGSA
LAOS-JAPAN INSTITUTE	General Manager	Mr. Toshio KINOSHITA
	Project Coordinator	Mr. Yutaka SATO

1.1 Current Problems of the Building

<Exterior>

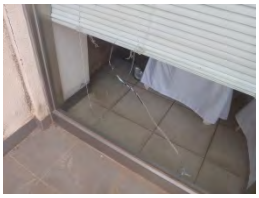
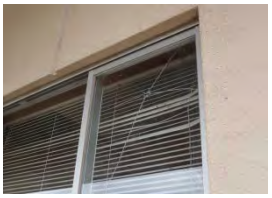
No.	Location	Condition		Cause	Countermeasure	Priority Rank
1	Wall					
1-1	Wall North Backside Entrance (Mini Cafeteria)		Many cracks on the wall along the joint between the RC beam and the concrete block wall, and RC column and the concrete block wall. Monstly the cracks are ±oncrete block wall, and RC column a A trace of water leakage throught the crack was observed.	Shrinkage and dryouts are causing the crackes because there is no control joint between the different substrate underneath.	Remove the delaminated mortar and repair the substrate with mortar or mortar resin material. After the repair, mortar resin spray paint needs to be applied. For the control joints, new groove (approx. W25mm, D10mm) needs to be created and filled with caulking material.	A
1-2	Wall East Stair-1		Same as the above	Same as the above	Same as the above	A
1-3	Kitchen		Same as the above	Same as the above	Same as the above	A

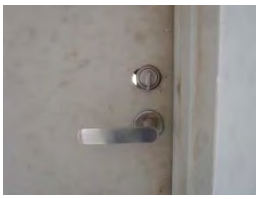
No.	Location	Condition		Cause	Countermeasure	Priority Rank
1-4	ADM	 	0.1～0.3mm wide crack from the corner of window was observed. Leakage to the interior was not observed.	The mortar fill around the window frames were not enough. Also, the corner reinforcement for the window opening was not enough to prevent the cracks.	The delaminated mortar and other cracked area need to be removed. After the removal, the substrate needs to be repaired, and mortar resin spray finish needs to be applied.	A
1-5			Cracks due to the shrinkage and the movement of the different material underneath.	Same as the above	Same as the above	A
1-6	Wall North	 	Cracks due to the shrinkage and the movement of the different material underneath.	Shrinkage and dryouts are causing the crackes because there is no control joint between the different substrate underneath.	Remove the delaminated mortar and repair the substrate with mortar or mortar resin material. After the repair, mortar resin spray paint needs to be applied. For the control	A

No.	Location	Condition		Cause	Countermeasure	Priority Rank
					joints, new groove (approx. W25mm, D10mm) needs to be created and filled with caulking material.	
1-7	Wall East	 	Same as the above The east walls are the most damaged.	Same as the above	Same as the above	A
1-8	Wall West		Same as the above The west walls are the second damaged.	Same as the above	Same as the above	A
1-9	Wall South		Cracks due to the shrinkage and the movement of the different material underneath.	Same as the above	Same as the above	A
2	Eaves Ceiling & Slab Soffit					
2-1	Main hall (East Wall)		Broken Soffit Cement Board Numerous cracks along the soffit were observed.	Strong winds against the extended rake along with regular	Reinforce the substrate of the rake, and fill the holes with new flexible cement	A

No.	Location	Condition		Cause	Countermeasure	Priority Rank
				deterioration may have caused fatigues and then cracks in the cement board mostly around the screws and the substrate.	boards or silicate board. Matching paint needs to be applied as the finish.	
3	Roof					
3-1	Slate Roof Tile (Multipurpose RM East side)		A slate roof tile is missing at the verge of the big sloped roof.	There is no indication that it's caused by maintenance activity. It is probably caused by either strong wind moving the rake part of the roof and/or the screws that was too tightened during the construction.	Replace the roof tile. (If needed, reinforcement of the substrate.)	A

No.	Location	Condition		Cause	Countermeasure	Priority Rank
3-2	Galvanized Steel Metal Roof (Multipurpose RM East side)		Metal roofing covering the eave is loose at the end of the big sloped roof.	The nail that was attaching the roofing to the substrate may have been ruined due to the fatigue fracture caused by the repetitive movements of the rake extension caused by strong wind.	The metal roofing needs to be strongly reattached with screws. (If needed, reinforce the substrate.)	B
3-3	Cement Roof Tile (Main Entrance)		A cement roof tile is missing	Someone may have been stepped on too strongly during maintenance of the roof.	Replace the roof tile.	A
3-4	Waterproofing membrane		Overall deterioration of the waterproof membrane.	Lack of enough design caution in the hot/rainy climate. Also, the lack of proper construction	Overall renovation.	A

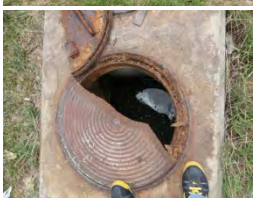
No.	Location	Condition		Cause	Countermeasure	Priority Rank
				along with the deterioration of the material.		
4	Aluminum Sash					
4-1	Foyer Window (Backside Entrance)		Crack on Window Glass	Collision by the tables and/or chairs in the area.	Replace the glass. The glass, however, is larger (900x3000) than popular sizes. If the cost exceeds a budget, the application of film coating as a temporary fix may be considered.	A
4-2	Admin. / Data Info. Room		Crack on Window Glass	A gravel from the gravel berm was thrown by a car parked over the gravel berm.	Replace the glass.	B
4-3	Sky light (AW-S2)		Crack on Sky light Glass Trace of water leakage is observed on the wall in WC1W	A fallen piece of cement board from the rake soffit above hit the glass.	Replace the glass.	A

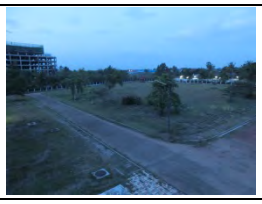
No.	Location	Condition		Cause	Countermeasure	Priority Rank
5	Steel Door 2F Roof		There is a hole through the exterior door next to the lock cylinder.	As a preparation to install the latch, the hole was made at the wrong location, and never covered.	The hole needs to be covered with metal sheet and smoothed and painted. Or the door itself needs to be replaced.	A
6	Entrance Porch					
6-1	Main Entrance		Crack is observed on the ceiling.	The substrate was not dried properly. Also, the lack of control joints is causing the cracks.	Patch the substrate and reapply the elastic spray paint finish.	A
6-2	Backside Entrance Ceramic Tile		Broken tile on the curb along the Service yard slope	Uncareful collision by the vehicle or carriage while bringing in items inside.	Remove the delaminated tiles and reapply matching tiles after patching the substrate.	B
7	Patio					

No.	Location	Condition		Cause	Countermeasure	Priority Rank
7-1	Patio-1 Wall		Shrinkage and dry-out cracks of the finishing mortar were observed. The direct sunlight entering the patio is heating up the space.	The substrate was not dried properly. Also, the lack of control joints is causing the cracks.	Patch the substrate and reapply the elastic spray paint finish. Cover the glass windows with heat reflection films.	A
7-2	Patio-2		Same as the above.	Same as the above.	Same as the above.	A
7-3	Patio-3 Wall		Same as the above.	Same as the above.	Same as the above.	A
8	External Stair (Stair 3)		Finish mortar is detached and falling-off.	Shrinkage and dryouts are causing the crackes because there is no control joint between the different substrate underneath.	Remove the delaminated mortar and repair the substrate with mortar or mortar resin material. After the repair, mortar resin spray paint needs to be applied. For the control joints, new groove (approx. W25mm,	A

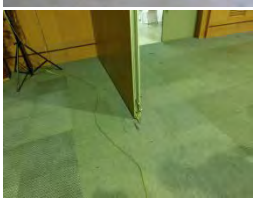
No.	Location	Condition		Cause	Countermeasure	Priority Rank
					D10mm) needs to be created and filled with caulking material.	
9	Rain Water Downspout		There is a trace of water leakage on the downspout at the connection to the gutter for the smaller sloped roof.	The trace of water streak is caused by improper connections of the downspouts.	Reconnect the downspouts, remove the streak, and reapply the paint.	A
10	Asphalt Paving		There are cracks and dents on the surface.	Due to regular aged deterioration.	If the dents or cracks expand in the future, the asphalt needs to be removed and the base course underneath needs to be adjusted. (Currently there is no serious dent, and the repair, if needed, can be done under regular maintenance by ICTC.)	C

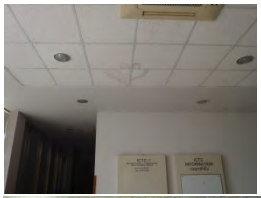
No.	Location	Condition		Cause	Countermeasure	Priority Rank
11	PC Curb & Gutter		Numerous chips and cracks on the curbs and the trenches. The bottom of trenches is broken at various locations.	The destructions of the curb and trench lid are caused by vehicle traffic and aged deterioration. Unknown for the destruction of trench bottom, over flowed water may have damaged the base course or leveling concrete underneath.	If needed, replace the broken part as the deterioration progresses.	C
12	Entrance Drop-off Paving		The paving tiles around the drop off area at the main entry are unevenly sunk due to the occasional car parking on the tiles.	Erosion of the base course sand and the parking of vehicles on the pedestrian pavement.	Remove the current pavement tile, replace the base course sand. Then, install new pavement after leveling the new base course. If vehicles are to be parked in the	A

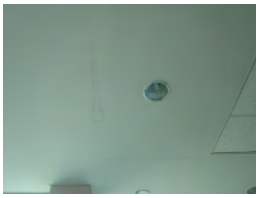
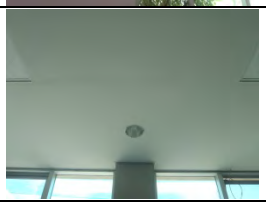
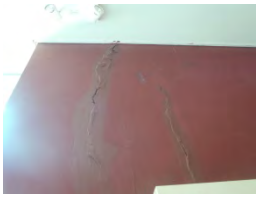
No.	Location	Condition		Cause	Countermeasure	Priority Rank
					area as is, interlocking pavement tiles are preferred.	
13	Sewerage Plant	  	A manhole cover is broken. Other covers are rusted and could not open.	Regular maintenance has not been conducted since the completion.	The septic tanks need to be cleaned, and broken parts need to be replaced. (No odor was observed. The demand for the treatment capacity seems low since the facility is used only during daytime. The capacity may have been meeting the demand so far with the acceleration of process due to the hot climate.)	A
14	Exterior Lighting		Some of the original fixtures have been broken and new fixtures were attached to the original pole.	Damaged due to water leakage or the lack of lamp replacement.	Replace the broken light poles or replace the lamps.	B

No.	Location	Condition		Cause	Countermeasure	Priority Rank
			Even some of the new fixtures are not working.			
16	Gas Canister Space		Propane gas canisters have not been used.	The gas heater is no longer used because catering services have been ordered to prepare meals.	If it's not needed, it is better to be removed for safety reasons. If there is possibilities to reuse the canteen as originally intended, it is not a big problem to leave it as is.	C
17	Exterior Fencing	 	Some of the exterior fences along the property are broken.	Aged deterioration and construction defects	Replace the defected part. There are no eminent danger nor security issues at this point.	C

<Interior>

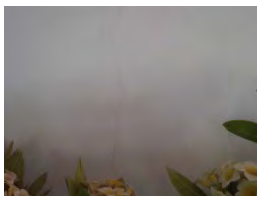
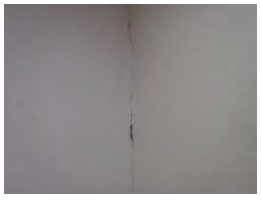
No.	Location	Condition		Cause	Countermeasure	Priority Rank
1F						
1	Multipurpose Room					
1-1	Room-A/B Sliding Wall	 	The movable partition cannot be fully opened. (The movable base of the 22nd panel cannot be lifted due to the broken parts inside, hence the panel cannot be moved.) Also, the fourth panel is starting to have the same problem.	Due to regular aged deterioration and misuse, the movable base parts are broken.	The panels are rarely opened. Hence only replacing the movable base mechanism of 4th and 22nd panel suffices.	B
1-2	Room-B Screen		The stopping device for the scrolling screen is defective.	Defective electrical circuit or the defective re-setting function of the stopper.	Replace the defective parts, and reset the stopper. (Currently it is operated manually and manageable.)	C
1-3	Room-A/B Carpet		Stain of Carpet	Due to regular aged deterioration and food/drink stains.	Replace all carpets.	B
1-4	Room-A/B Air Conditioni		AC is broken	Due to regular aged deterioration	Replace new machine.	B

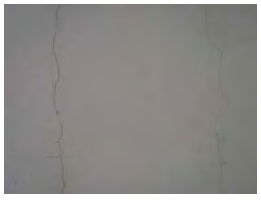
No.	Location	Condition		Cause	Countermeasure	Priority Rank
	ng					
2	Air Conditioning Machine Room (ACR)					
2-1	ACR-1	No problem	No defective problem was observed. Regularly cleaning is needed to clean spider webs and bird's nests.			N/A
2-2	ACR-2	No problem				N/A
2-3	ACR-3	No problem				N/A
2-4	ACR-4	No problem				N/A
2-5	ACR-5	No problem				N/A
2-6	ACR-6	No problem				N/A
2-7	ACR-7	No problem				N/A
2-8	ACR-8	No problem		-	-	N/A
2-9	ACR-9	No problem		-	-	N/A
3	Maintenance Corridor (MC)					
3-1	MC-1	No problem		-	-	N/A
3-2	MC-2	No problem	-	-	-	N/A
3-3	MC-3	No problem	-	-	-	N/A
4	Foyer					
4-1	Ceiling (Backside Entrance area)	 	Water mark on the ceiling was observed.	After checking the ceiling space, traces of water leakage was observed under the roof slab. Defection of the water proofing	If the ceiling is a part of system ceiling, the stained panel can be simply replaced. If the stain is on the plaster board portion, enough area needs to be replaced with new plaster	A

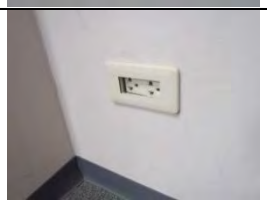
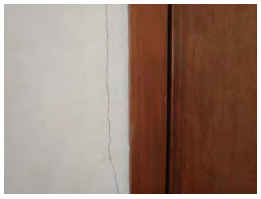
No.	Location	Condition		Cause	Countermeasure	Priority Rank
				around the roof drain above is causing the water leakage.	board. After puttying the surface, paint it in the matching color.	
4-2	Ceiling (Middle area)		Water mark on the ceiling was observed.	Defection of the water proofing on the roof s is causing the water leakage.	Same as the above.	A
4-3	Ceiling (Middle area)		Water mark on the ceiling was observed.	Same as the above.	Same as the above.	A
4-4	Ceiling (Middle area)		Water mark on the ceiling was observed.	Same as the above.	Same as the above.	A
4-5	Ceiling (Middle area)		Water mark on the ceiling was observed.	Same as the above.	Same as the above.	A
4-6	Ceiling (Middle area)		Water mark on the ceiling was observed.	Same as the above.	Same as the above.	A
4-7	Wall (Main entrance area)		Crack on the wall.	Subsurface mortar is cracked due to the lack of the control joints	After removal and cleaning the defected area, puttying the surface, and paint in the	A

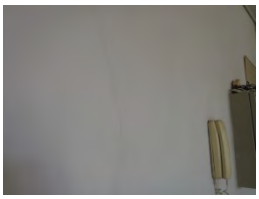
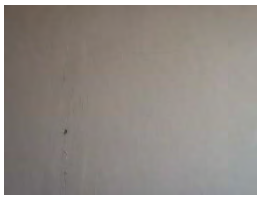
No.	Location	Condition		Cause	Countermeasure	Priority Rank
				between different substrates. The mortar and the paint along the crack are delaminated due to the water leakage from the roof.	matching color.	
4-8	Wall (Main entrance area)		Crack on the wall.	Same as the above.	Same as the above.	A
4-9	Wall (Backside Entrance area)		Crack on the wall.	Same as the above.	Same as the above.	A
5	Entrance Hall					
5-1	ceiling		Water mark on the ceiling was observed.	Subsurface mortar is cracked due to the lack of the control joints between different substrates.	If the stain is on the plaster board portion, enough area needs to be replaced with new plaster board. After puttying the surface, paint it in the matching color.	A

No.	Location	Condition		Cause	Countermeasure	Priority Rank
5-2	Info. Ceiling		Water mark on the ceiling was observed.	Same as the above.	Same as the above.	A
5-3	Info. Ceiling		Water mark on the ceiling was observed.	Same as the above.	Same as the above.	A
5-4	Wall		Crack on the wall.	Subsurface mortar is cracked due to the lack of the control joints between different substrates. The mortar and the paint along the crack are delaminated due to the water leakage from the roof.	After removal and cleaning the defected area, puttying the surface, and paint in the matching color.	A
5-5	Wall		Crack on the wall.	Subsurface mortar is cracked due to the lack of the control joints between different substrates.	Same as the above.	A

No.	Location	Condition		Cause	Countermeasure	Priority Rank
5-6	Info. Wall		Crack on the wall.	Subsurface mortar is cracked due to the lack of the control joints between different substrates. The mortar and the paint along the crack are delaminated due to the water leakage from the roof.	Same as the above.	A
5-7	Info. Desk		The socket on the information counter is broken.	Due to defective installation or misuse	Replace the defective parts.	C
6	Admin./Data Information Room					
6-1	wall		Crack on the wall.	Subsurface mortar is cracked due to the lack of the control joints between different substrates. The mortar and the paint along the	After removal and cleaning the defected area, puttying the surface, and paint in the matching color.	A

No.	Location	Condition		Cause	Countermeasure	Priority Rank
				crack are delaminated due to the water leakage from the roof.		
6-2	AC		Air conditioner is broken.	Due to running out of the service life, and a lack of proper maintenance .	If the same product can be locally purchased, replace the ceiling unit only. If the product is not locally available, replace both the ceiling unit and the outdoor unit.	B
7	Seminar Room-1					
	Wall		Crack on the wall.	Subsurface mortar is cracked due to the lack of the control joints between different substrates. The mortar and the paint along the crack are delaminated due to the	After removal and cleaning the defected area, puttying the surface, and paint in the matching color.	A

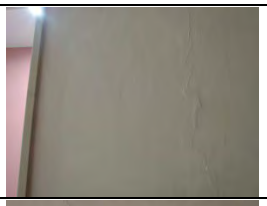
No.	Location	Condition		Cause	Countermeasure	Priority Rank
				water leakage from the roof.		
8	Seminar Room-2					
8-1	Wall		Crack on the wall.	Same as the above.	Same as the above.	A
8-2	Ceiling panel		Ceiling panel frame is bent.	Deformation of the metal frame due to misuse.	Repair the deformation or replace with a new frame.	C
8-3	Socket		Power socket is depressed.	Defect installation or misuse	Replace with new one.	C
9	Lecturer Room					
9-1	Wall		Crack on the wall.	Subsurface mortar is cracked due to the lack of the control joints between different substrates.	After removal and cleaning the defected area, puttying the surface, and paint in the matching color.	A
9-2	wall		Crack on the wall.	Subsurface mortar around the door frame is cracked due to the shrinkage.	Same as the above.	B

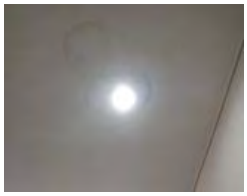
No.	Location	Condition		Cause	Countermeasure	Priority Rank
10	Guard Room wall		Crack on the wall	Subsurface mortar is cracked due to the lack of the control joints between different substrates.	Same as the above.	A
11	Pantry (1F)					
11-1	Sink		The stainless steel sink is coming off.	A heavy item more than the bearing capacity may have been placed or a person stepped on it for the inspection of upper area.	Adjust the bracket ridge, and re-install the sink.	C
11-2	Wall		Crack on the wall.	Subsurface mortar is cracked due to the lack of the control joints between different substrates.	After removal and cleaning the defected area, puttying the surface, and paint in the matching color.	A
11-3	Wall		Crack on the wall.	Subsurface mortar around the door frame	Same as the above.	B

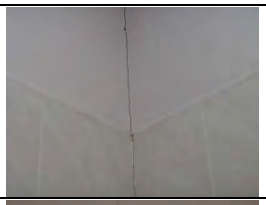
No.	Location	Condition		Cause	Countermeasure	Priority Rank
				is cracked due to the shrinkage.		
12	Mini Cafeteria					
12-1	Ceiling		Water mark on the ceiling was observed.	Subsurface mortar is cracked due to the lack of the control joints between different substrates. The mortar and the paint along the crack are delaminated	The plaster board portion needs to be removed enough area and replaced with new plaster board. After puttying the surface, paint it in the matching color.	A
12-2	Column		Crack on the wall.	Subsurface mortar is cracked due to the lack of the control joints between different substrates.	After removal and cleaning the defected area, puttying the surface, and paint in the matching color.	A/B
13	Kitchen					
13-1	Wall		The switch for exhaust fan is missing.	When the gas stove was removed, the exhaust fan and the switch might	If the exhaust fan is not needed, cover the switch box with a metal plate.	B/C

No.	Location	Condition		Cause	Countermeasure	Priority Rank
				have been removed as well.		
13-2	Ceiling		Water mark and mold on the ceiling was observed.	Water leakage due to the defect water proofing above or mold	Clean up	C
14	Staff Room					
14-1	Wall		Crack on the wall.	Due to shrinkage of the mortar.	Remove the defected area, putting the substrate, and repaint.	C
14-2	Wall		Trace of water leakage from the exterior wall.	When the cable was installed after the completion of the building, the empty conduits originally prepared to install additional cables were ignored and new hole on the exterior wall was drilled. Due	Add water proofing putty filling around the penetration.	C

No.	Location	Condition		Cause	Countermeasure	Priority Rank
				to the insufficient water proofing around the penetration.		
15	Storage					
15-1	Storage-1 Wall		Crack on the wall.	Due to shrinkage of the mortar.	Remove the defected area, putting the substrate, and repaint.	C
15-2	Storage-2 Wall		Crack on the wall.	Same as the above.	Same as the above.	C
15-3	Storage-3		Stain on the ceiling around the movable partition track.	Due to the oil stain in lubricating the bearing of the trolley, or due to condensation water.	No action seems necessary since it's the ceiling in the storage.	C
15-4	Storage-4		Stain on the ceiling around the movable partition track	Same as the above.	Same as the above.	C
16	Garbage Storage		The faucet cannot work due to the lack of the handle.	Due to a collision by a item stored in the room used as a storage.	Replace the faucet.	C

No.	Location	Condition		Cause	Countermeasure	Priority Rank
17	Corridor					
17-1-1	Corridor-1 Ceiling		Water mark on the ceiling was observed.	Stain due to the condensation along the AC piping.	Replace the defected parts.	A
17-1-2	Corridor-1 Wall		Crack on the wall.	Subsurface mortar is cracked due to the lack of the control joints between different substrates.	After removal and cleaning the defected area, puttying the surface, and paint in the matching color.	A
17-2	Corridor-2	No problem	-	-	-	-
17-3	Corridor-3		Crack on the wall	Same as the above.	Same as the above.	A
17-4	Corridor-4		Crack on the wall.	Same as the above.	Same as the above.	A
17-5	Corridor-5		Crack on the wall.	Same as the above.	Same as the above.	A
17-6	Corridor-6		Crack on the wall.	Same as the above.	Same as the above.	A

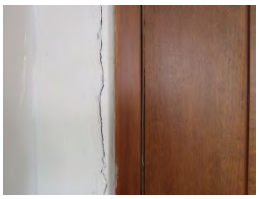
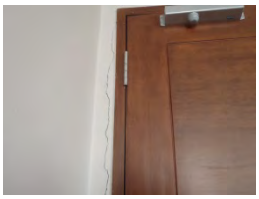
No.	Location	Condition		Cause	Countermeasure	Priority Rank
17-7	Corridor-7 wall		Crack on the wall.	Same as the above.	Same as the above.	A
18	WC-1					
18-1	Men Wall		Crack on the wall.	Same as the above.	Same as the above.	A
18-2	Men Ceiling		Water mark on the ceiling was observed.	Defection and the aged deterioration of the water proofing around the roof drain above is causing the water leakage.	The plaster board portion needs to be removed enough area and replaced with new plaster board. After puttying the surface, paint it in the matching color.	A
18-3	Men Booth		The flush valve of water closet is broken.	Foreign matter is preventing from flushing.	Detach the flush valve to clean. If it is broken, replace the flush valve.	B
18-4	Women Ceiling		Water mark on the ceiling was observed.	Defection and the aged deterioration of the water proofing around the roof drain above is causing the	The plaster board portion needs to be removed enough area and replaced with new plaster board. After puttying the	A

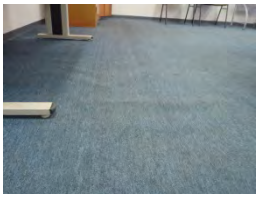
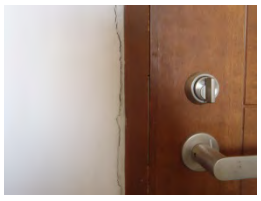
No.	Location	Condition		Cause	Countermeasure	Priority Rank
				water leakage.	surface, paint it in the matching color.	
18-5	Women Wall		Crack on the wall.	Subsurface mortar is cracked due to the lack of the control joints between different substrates.	After removal and cleaning the defected area, puttying the surface, and paint in the matching color.	A
18-6	Women Wall		Crack on the wall.	Same as the above.	Same as the above.	A
18-7	Women Wall (Tile)		Crack on the wall.	Same as the above.	Same as the above.	A/B
18-8	Women SK Wall		Crack on the wall.	Due to shrinkage of the substrate mortar.	Same as the above.	A
18-8	Disabled Ceiling		Water mark on the ceiling was observed.	Defection of the water proofing on the roof s is causing the water leakage.	Same as the above.	A
18-9	Ante Room	No problem	-	-	-	N/A

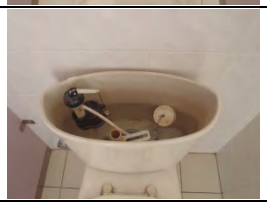
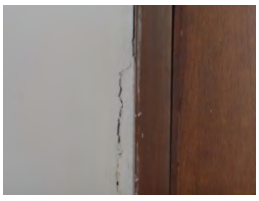
No.	Location	Condition		Cause	Countermeasure	Priority Rank
19	WC-2					
19-1	Men	No problem	-	-	-	-
19-2	Women Booth1		The flush valve of water closet is broken.	Foreign matter is preventing from flushing.	Detach the flush valve to clean. If it is broken, replace the flush valve.	B
19-3	Women Ceiling		Water mark on the ceiling was observed.	Defection and the aged deterioration of the water proofing around the roof drain above is causing the water leakage.	The plaster board portion needs to be removed enough area and replaced with new plaster board. After puttying the surface, paint it in the matching color.	A
19-4	Women Wall		Crack on the wall.	Subsurface mortar is cracked due to the lack of the control joints between different substrates.	After removal and cleaning the defected area, puttying the surface, and paint in the matching color.	A
20	WC-3	No problem	-	-	-	N/A
21	Pump Room					
21-1	Fire pump		The pressure gauge is filled with liquid.	Due to defected installation, water	Overhaul the pump and replace the gauge if needed.	B

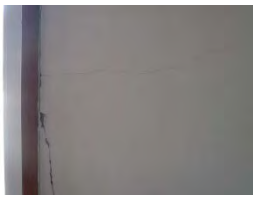
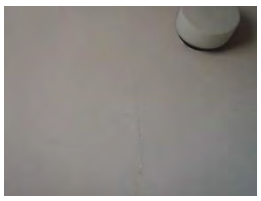
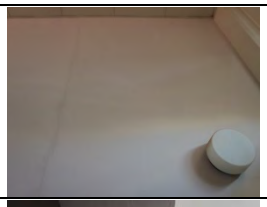
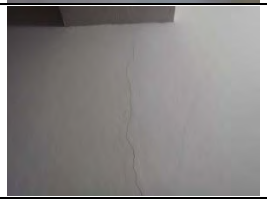
No.	Location	Condition		Cause	Countermeasure	Priority Rank
				infiltrated into the pressure gauge and rusted the metal.		
21-2	Fire pump		The joint of piping is loose and the rubber water stop is not tight enough.	Due to a lack of proper tightening.	Replace the rubber washer and reconnect the piping.	B
21-3	Pump	  	The water pumps cannot be operated alternatively.	One of the timers was broken and has been detached.	After replacing the timer, overall testing and inspection will be needed.	C
22	Electrical Room Grill		The large grille (1800x1800mm) for the electrical room are partially covered with metal panels to prevent rain water from entering. The room temperature	Either due to the change of the room use during the design phase or excessively enlarged the grille for the aesthetic, the majority of the grille	Clean the filter and put it at proper location.	C

No.	Location	Condition		Cause	Countermeasure	Priority Rank
			rises due to the cover, and the panel doors are never closed. Partially problems are starting to occur.	needed to be covered. Small portion of the grille needs to be open for the ventilation of the room, however, its filter is clogged by dusts due to the lack of cleaning.		
2F						
23	Interpretation Booth (IB)					
23-1	IB-1 wall		Crack on the wall.	Due to shrinkage of the substrate mortar.	After removal and cleaning the defected area, puttying the surface, and paint in the matching color.	B/C
23-2	IB-2 wall		Crack on the wall.	Due to shrinkage of the substrate mortar around the door frame.	Same as the above.	B/C
23-3	IB-3	No problem	-	-	-	N/A
23-4	IB-4	No problem	-	-	-	N/A
23-5	IB-5	No problem	-	-	-	N/A
23-6	IB-6	No problem	-	-	-	N/A
23-7	IB-1-6		AC is broken	Due to	Replace new	B

No.	Location	Condition		Cause	Countermeasure	Priority Rank
	Air Conditioning			regular aged deterioration	machine.	
24	Control Room	No problem	-	-	-	N/A
25	Interpreter's Room	No problem	-	-	-	N/A
26	Maintenance Corridor	No problem	-	-	-	N/A
27	Director Room					
27-1	Wall		Crack on the wall.	Due to shrinkage of the substrate mortar.	After removal and cleaning the defected area, puttying the surface, and paint in the matching color.	A
27-2	Wall		Crack on the wall.	Due to shrinkage of the substrate mortar around the door frame.	Same as the above.	A
28	Staff Meeting Room					
28-1	Wall		Crack on the wall.	Due to shrinkage of the substrate mortar.	Same as the above.	A
28-2	Wall		Crack on the wall.	Due to shrinkage of the substrate mortar around the door frame.	Same as the above.	A

No.	Location	Condition		Cause	Countermeasure	Priority Rank
28-3	Floor		Air pockets under the floor carpet	Aged deterioration of the carpet.	Replace with new carpet. (No operational problem under current use.)	C
29	Staff Room					
29-1	Cleaning Wall		Crack on the wall.	Due to shrinkage of the substrate mortar around the door frame.	After removal and cleaning the defected area, puttying the surface, and paint in the matching color.	A
29-2	Cleaning Wall		Crack on the wall.	Due to shrinkage of the substrate mortar.	Same as the above.	A/B
29-3	Gardening		Crack on the wall	Same as the above.	Same as the above.	A/B
29-4	Technician Wall		Crack on the wall	Same as the above.	Same as the above.	A/B
29-5	Technician Wall		Crack on the wall.	Due to shrinkage of the substrate mortar around the door frame.	Same as the above.	A
30	Tool Storage wall		Crack on the wall	Same as the above.	Same as the above.	A

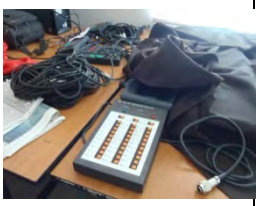
No.	Location	Condition		Cause	Countermeasure	Priority Rank
31	WC-4					
31-1	Men Booth1		Parts of the water tank are broken.	Due to the missing screw to fix the pushbutton.	Replace the screw.	C
31-2	Men Booth2		Parts of the water tank are broken.	Same as the above.	Same as the above.	C
31-3	Women Booth1		Parts of the water tank are broken.	Same as the above.	Same as the above.	C
31-4	Women Booth2		Parts of the water tank are broken.	Same as the above.	Same as the above.	C
32	Pantry (2F)		Crack on the wall.	Due to shrinkage of the substrate mortar around the door frame.	After removal and cleaning the defected area, puttying the surface, and paint in the matching color.	A
33	Corridor (2F)					
33-1	C-1	No problem	-	-	-	-
33-2	C-2 wall		Crack on the wall.	Due to shrinkage of the substrate mortar.	Same as the above.	A

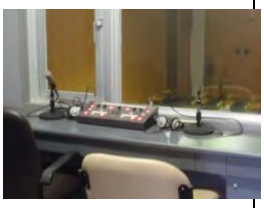
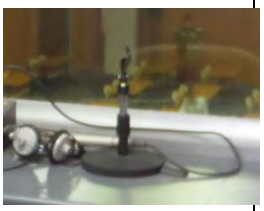
No.	Location	Condition		Cause	Countermeasure	Priority Rank
33-3	C-3 Wall		Crack on the wall.	Due to shrinkage of the substrate mortar around the door frame.	Same as the above.	A
33-4	C-3 Wall		Crack on the wall.	Due to shrinkage of the substrate mortar.	Same as the above.	A
RF						
34	Catwalk	No problem	-	-	-	N/A
35	Maintenance Corridor (MC)					
35-1	MC-1	No problem	-	-	-	N/A
35-2	MC-2	No problem	-	-	-	N/A
35-3	MC-3	No problem	-	-	-	N/A
35-4	MC-4	No problem	-	-	-	N/A
35-5	MC-5	No problem	-	-	-	N/A
Common						
36	Stair					
36-1	Stair-1 (1F) Wall		Crack on the wall.	Due to shrinkage of the substrate mortar.	After removal and cleaning the defected area, puttying the surface, and paint in the matching color.	A
36-2	Stair-1 (2F) Wall		Crack on the wall.	Same as the above.	Same as the above.	A/B
36-3	Stair-2 (1F) Wall		Crack on the wall.	Same as the above.	Same as the above.	A/B

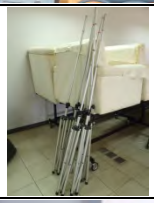
No.	Location	Condition		Cause	Countermeasure	Priority Rank
36-4	Stair-2 (2F) Wall		Crack on the wall.	Same as the above.	Same as the above.	A/B
37	Signage					
37-1	Exit Signage (Entrance hall)		One of the exit sign is not lit. (Left one)	Due to running out of the battery.	If the same product is available, replace the battery. (Under current operation, there is no problem, for the night time use is very limited and the exits are very easily recognizable.)	C
37-2	Exit Signage (Corridor-5)		Exit sign is not lit.	Same as the above.	Same as the above.	C

1.2 Current Problems of the Equipment

<Equipment>

No.	Equipment (Original →Current Quantity)	Condition		Cause	Countermeasure	Priority Rank
1	Simultaneous interpretation & Conference System					
1-1	Unit for Simultaneous interpretation & Conference					
1-1-1	Control Unit (1→1)	It is still working.				N/A
1-1-2	Interpreter's Unit (6→6)	All of them are still working.				N/A
1-1-3	Chairman's Unit (1→1)	It is not working well.		Connection defect due to aging degradation	Replace the defected part, or repair the connection part. Or use the rental equipment instead.	C
1-1-4	Delegates Unit (27→43)		Twenty three units are still working Four units have been broken Twenty units are newly bought	Same as above	Same as above	C
1-1-5	Mic Control Unit (1→1)		It is not used.	When the translation booth is used, the switcher in the booth is used. For each conference room, rental equipment is used.	-	N/A

No.	Equipment (Original →Current Quantity)	Condition		Cause	Countermeasure	Priority Rank
1-1-6	Double Cassette Deck (1→1)		It is not used	Cassett tape is no longer used. PC may have been used instead.	Sound is not recorded for checking due to the less need for multi lingual translation.	N/A
1-1-7	Earphones (Monaural Headphones) (28→less than 28)		Less than twenty eight units need to be replaced. (Some of tnem are lost.) They are noisy , too old and put with stereo headphones of 1-2-4	Aging deterioration	-	N/A
1-1-8	Dynamic Microphone (13→7)		Seven units are not working well. Six units are lost	Aging deterioration /Experation of working lifetime.	Replace the defected part, or repair the connection part. Or use the rental equipment instead.	C
1-1-9	Table Mic Stand (13→11)		Eleven units are still working. One unit is broken. Onother one unit is lost.	Misuse	Same as above	C

No.	Equipment (Original →Current Quantity)	Condition		Cause	Countermeasure	Priority Rank
1-1-10	Stereo Headphones (13→10)		Ten units are still working. Three units are lost.	Aging deterioration /Experation of working lifetime.	Same as above	C
1-2	Unit for Infrared Transceiver					
1-2-1	Infrared Transmitter (1→1)	It is not used and need to be tested.		Radio type units (rented) are used.	-	C or N/A
1-2-2	Infrared Radiator (6→6)		All of them are not used and need to be tested.	Same as above	-	C or N/A
1-2-3	Tripod for Infrared Radiator (6→6)		All of the are still working	Same as above	-	N/A
1-2-4	Infrared Hearing System (200→196)	  	One hundred ninety six infrared receivers are not used and need to be tested. Four units are broken. (One hundred ninety two stereo headphones are not used and need to be tested. Eight units are lost.)	Same as above	Replace the defected part, or repair the connection part. Or use the rental equipment instead.	C or N/A

No.	Equipment (Original →Current Quantity)	Condition		Cause	Countermeasure	Priority Rank
1-2-5	Reciever Charger (4→4)		All of them are not used and need to be tested.	Same as above	Same as above	C or N/A
1-3	Accessory of Simultaneous interpretation & Conference System					
1-3-1	System Rack (1→1)		It is still working.	-	-	N/A
1-3-2 1-3-3 1-3-4 1-3-5	Carrying Case (9→7)		Four units are moved to ADM RM. Three units are moved to Str.-1. Two of them are lost.	-	-	N/A
1-3-6	Installation Material (1→1)		Some of them are broken and bought * refer to request No.7	Disorganized storing and lack of proper maintenance	-	C or N/A
2	AV Presentation System-1					
2-1	Video Unit					
2-1-1 3-1-1	LCD Projector (2→1)	 	All of them are broken. One unit is bought. IFA or rental shop bring additional projector if it	Expired working lifetime	Replace the defected part, or repair the connection part. Or use the rental equipment instead. Discard application will be needed.	C

No.	Equipment (Original →Current Quantity)	Condition		Cause	Countermeasure	Priority Rank
		One projector belongs to ICTC. Two units belong to IFA.	is needed. * refer to request No.5			
2-1-2 3-1-4	Slide Projector (2→0)		All of them are broken and not used.	Slides are rarely used in presentations	Replace the defected part, or repair the connection part. Or use the rental equipment instead. Discard application will be needed.	N/A
2-1-3 3-1-5	VTR (2→2)		All of them are not used.	VTRs are rarely used in presentations. PCs are used for video presentations.	Same as the above	N/A
2-1-4 3-1-6	Connector Unit for Video (4→4)		All of them are not used.	Same as the above	Same as the above	N/A
2-1-5 3-1-7	Note Book PC (2→0)		One unit is broken. Another one is lost. * refer to request No.2	Expired working lifetime	Replace with off-the-shelf new computer if needed.	B/C
2-2	Acoustic/Sound Equipment					
2-2-1 3-2-1	Wireless Microphone Tuner (4→7)		All of them need to be tested. Three units are bought	The compatibility with newly purchased wireless microphone needs to be tested.	-	N/A

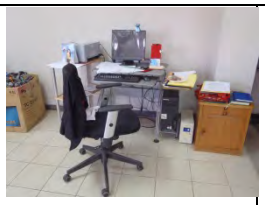
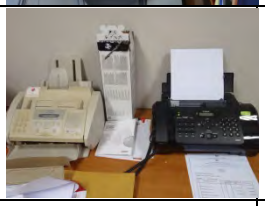
No.	Equipment (Original →Current Quantity)	Condition	Cause	Countermeasure	Priority Rank
2-2-2 3-2-2	Antenna for Wireless Microphone (8→8)	 All of them need to be tested.	Same as the above	-	C
2-2-3 3-2-3	Wireless Microphone (8→7)	 One unit is still working. Seven units are broken. Six units are bought. * refer to request No.4	Expired working lifetime The compatibility with newly purchased wireless microphone needs to be	Replace the defected part, or repair the connection part. Or use the rental equipment instead.	C
2-2-4 3-2-4	Dynamic Microphone (10→8)	Eight units are still working. Two units are broken and lost. * refer to request No.3	- Expired working lifetime and misuse.	- Same as the above	C
2-2-5 3-2-5	Microphone Stand (Floor Type) (4→4)	All of them are still working.	-	-	N/A
2-2-6 3-2-6	Microphone Stand (Tabletop Type) (4→4)	All of them are still working.	-	-	N/A
2-2-7 3-2-7	Audio Mixer (4→4)	All of them are still working.	-	-	N/A
2-2-8 3-2-8	Power Amplifier-A (4→4)	All of them are still working.	-	-	N/A
2-2-9 3-2-9	Power Amplifier-B (4→4)	All of them are still working.	-	-	N/A
2-2-10 3-2-10	Speaker (6→6)	All of them are still working.	-	-	N/A

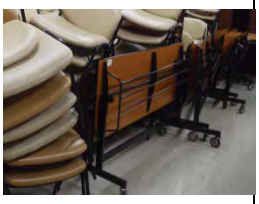
No.	Equipment (Original →Current Quantity)	Condition		Cause	Countermeasure	Priority Rank
2-2-11	Portable Speaker (2→2)		All of them are still working. *refer to request No.6	-	-	N/A
2-2-12	Tripod for Speaker (2→2)	ditto	2 still working	-	-	N/A
2-2-13 3-2-11	Ceiling Speaker (28→28)	All of them are still working.		-	-	N/A
2-2-14	Graphic Equalizer (2→2)	All of them are still working.		-	-	N/A
2-2-15 3-2-13	Input Panel (4→4)	All of them are still working.		-	-	N/A
2-2-16	Connector Unit for Microphone (4→4)	All of them are still working.		-	-	N/A
2-2-17	Connector Unit for Speaker (2→2)	All of them are still working.		-	-	N/A
2-3	Accessory of AV Presentation System-1					
2-3-1 3-3-1	AV Table-1 (5→5)		All of them are still working.	-	-	N/A

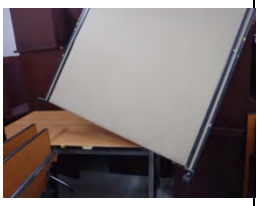
No.	Equipment (Original →Current Quantity)	Condition		Cause	Countermeasure	Priority Rank
2-3-2	AV Table-2 (2→2)		All of them are still working.	-	-	N/A
2-3-3	I/O Patching Panel (1→1)	It is still working		-	-	N/A
2-3-4	Power Control Unit for Rack (1→1)	It is still working		-	-	N/A
2-3-5	Rack (1→1)	It is still working		-	-	N/A
2-3-6	Power Control Unit for AV Table (2→2)	All of them are still working.		-	-	N/A
2-3-7	Connection Panel-1 for AV Table-1 (1→1)	It is still working		-	-	N/A
2-3-8	Connection Panel-2 for AV Table-2 (1→1)	It is still working		-	-	N/A
2-3-9	Installation Material (1→1)		Some of them are broken and bought.	Disorganized storing and lack of proper maintenance	-	C or N/A

No.	Equipment (Original →Current Quantity)	Condition	Cause	Countermeasure	Priority Rank
3	AV Presentation System-2				
3-1	Video Unit				
3-1-1	LCD Projector (*refer to 2-1-1/3-1-1)				
3-1-2	Portable Screen (2→2)	All of them are still working.	-	-	N/A
3-1-3	OHP (1→1)	 It is not used.	Film media are not used in presentations. PCs are used for slide projections.	Discard application will be needed.	N/A
3-1-4	Slide Projector (*refer to 2-1-2/3-1-4)		-	-	N/A
3-1-5	VTR (*refer to 2-1-3/3-1-5)		-	-	N/A
3-1-6	Connection Unit for Video (*refer to 2-1-4/3-1-6)		-	-	N/A
3-1-7	Note Book PC (*refer to 2-1-5/3-1-7)		-	-	N/A
3-2	Acoustic Facility		-	-	N/A
3-2-1	Wireless Microphone Tuner (*refer to 2-2-1/3-2-1)		-	-	N/A
3-2-2	Antenna for Wireless Microphone (*refer to 2-2-2/3-2-2)		-	-	N/A
3-2-3	Wireless Microphone (*refer to 2-2-3/3-2-3)		-	-	N/A
3-2-4	Dynamic Microphone (*refer to 2-2-4/3-2-4)		-	-	N/A
3-2-5	Microphone Stand (Floor Type) (*refer to 2-2-5/3-2-5)		-	-	N/A
3-2-6	Microphone Stand (Tabletop Type) (*refer to 2-2-6/3-2-6)		-	-	N/A
3-2-7	Audio Mixer (*refer to 2-2-7/3-2-7)		-	-	N/A
3-2-8	Power Amplifier-A (*refer to 2-2-8/3-2-8)		-	-	N/A
3-2-9	Power Amplifier-B (*refer to 2-2-9/3-2-9)		-	-	N/A
3-2-10	Speaker (*refer to 2-2-10/3-2-10)		-	-	N/A
3-2-11	Ceiling Speaker (*refer to 2-2-13/3-2-11)		-	-	N/A

No.	Equipment (Original →Current Quantity)	Condition	Cause	Countermeasure	Priority Rank
3-2-12	Cassette Deck (1→1)	 It is not used.	Cassette tapes are no longer used as recording media..	If it is no longer used certainly, discard application needs to be filed.	N/A
3-2-13	Input Panel (*refer to 2-2-15/3-2-13)		-	-	N/A
3-3	Accessory of AV Presentation System-2				
3-3-1	AV Table-1 (*refer to 2-3-1/3-3-1)		-	-	N/A
3-3-2	AV Table-2 (2→2)	All of them are still working.	-	-	N/A
3-3-3	Power Control Unit for AV Table (2→2)	All of them are still working.	-	-	N/A
3-3-4	Connection Panel-1 for AV Table-2 (1→1)	It is still working	-	-	N/A
3-3-5	Connecting Board-2 of AV Table-2 (1→1)	It is still working	-	-	N/A
3-3-6	Installation Material (1→1)	It is still working	-	-	N/A
4	Desk-Top PC (2→1)	 All of them are broken. Three units are bought but	Expired working life time.	Replace with new models if needed.	C or N/A

No.	Equipment (Original →Current Quantity)	Condition		Cause	Countermeasure	Priority Rank
			two of them are already broken. Only one unit is still working. * refer to request No.2			
5	Printer (1→1)		It is broken. One unit is bought. * refer to request No.1	Expired working lifetime.	Same as the above.	N/A
6	Scanner (1→1)		It is broken and lost. One unit is bought.	Same as the above.	Same as the above.	N/A
7	Fax Machine (1→1)		It is broken. One unit is bought.	Same as the above.	Same as the above.	N/A
8	Copy Machine (1→2)		It is broken. Two units are bought. *refer to request No.10	Same as the above.	Same as the above.	C or N/A
9	Maintenance Tool-1 (for Building) (1→1)		It is broken. One unit is bought.	Disorganized storing.	-	N/A
10	Maintenance Tool-2 (for		It is broken. One unit is	Same as the above.	-	N/A

No.	Equipment (Original →Current Quantity)	Condition		Cause	Countermeasure	Priority Rank
	Equipment) (1→1)		bought.			
11	Wheelchair (1→1)		It is still working.	Same as the above.	-	N/A
12	Desk (418→387)		Three hundred eighty seven units are still working. Thirty one units are broken.	Expired working lifetime and misuse.	-	C
13	Desk for Computer-1 (1→1)		It is still working.	Same as the above.		N/A
14	Desk for Computer-2 (2→1)		One of them is still working. Another one unit is lost.	Same as the above.		C or N/A
15	Meeting Table-1 (6→6)	All of them are still working.		-	-	N/A
16	Meeting Table-2 (5→4)		Four units are still working. One unit is broken.	Same as the above.		C or N/A
17	Chair (17→16)		Sixteen units are still working. One unit is broken.	Same as the above.		C

No.	Equipment (Original →Current Quantity)	Condition	Cause	Countermeasure	Priority Rank
18	Work Table (2→2)	All of them are still working.			N/A
19	Whiteboard (Fix) (2→2)	 All of them are still working but rarely used. They are moved toStr.-1.	Due to the operator change.	-	N/A
20	Whiteboard (Movable) (2→2)	 All of them are still working.	-	-	N/A
21	Partition (Movable) (16→14)	 Fourteen units are still working. Two units are broken.	Misuse	-	C or N/A
22	Cabinet (5→5)	 All of them are still working.	-	-	N/A
23	Book Shelf (1→1)	 It is still working.	-	-	N/A
24	Stool (10→10)	 All of them are still working.	-	-	N/A
25	Stage (Movable)-1 (12→12)	All of them are still working.	-	-	N/A
26	Stage (Movable)-2 (44→44)	All of them are still working.	-	-	N/A

Appendix 4-2 Current Problems (Equipment)

No.	Equipment (Original →Current Quantity)	Condition		Cause	Countermeasure	Priority Rank
27	Stacking Chair (883→683)		Six hundred eighty three units are still working. Approximately 200 units are broken.	Expired working lifetime, and misuse.	-	C or N/A
28	Teacher's Desk (3→3)	All of them are still working.		-	-	N/A
29	Dolly for Stacking Chair (2→1)		One of them is still working. Another unit is lost.	Disorganized property management	-	N/A

Requesting New Equipment					
No.	Equipment	Condition	Cause	Countermeasure	Priority Rank
R1	2 medium-sized printers	As the ICTC serves several meetings, workshops, seminars…etc on the same day; it needs at least two printers to deal with such the situation at the ICTC.		-	C
R2	4 sets of computers	There are 11 officials, who are in charge with the ICTC, so they need to use the computers to record the events as well as to manage daily works.		-	B/C
R3	10 cable microphones	The meeting rooms at the ICTC are large, so they need more cable microphones to be set up for a lot of audience.		-	C
R4	5 wireless microphones	Sometimes, there are over four co-chairs at the front table in each room, so they need to be distributed to the meeting rooms.		-	C
R5	2 LCD projectors	Most of meetings, workshops, seminars…etc held at the ICTC need more LCD projectors to facilitate presentations and videos.		-	C
R6	1 mobile speaker	R6-1: 1 mobile speaker Sometimes, interpreters need to sit behind the chair so as to interpret in the meeting rooms, thanks to a large number of participants. Another reason is that the equipment of the interpreting rooms is not accessible (it is very difficult to be used) R6-2 : headset-dividers and headsets There are not enough headset-dividers and headsets for numerous audience in Room A, B, C, D, E and F, based on in-out side the meeting rooms.		-	C
R7	2 cables for chair's table (10 meters for each)	As the old ones have been out-of-date and damaged, so they need to be replaced.		-	C
R8	1 washing machine for carpets	The carpets in the meeting rooms have been used for over ten years, so they need to be cleaned.		-	C

R9	2 vacuuming cleaners	The main purpose of using vacuuming cleaners is to clean the meeting rooms, with carpets.	-	C
R10	1 photocopier	As the ICTC serves many events on the same day, it needs a photocopier to copy meeting and training papers.	-	C
R11	1 main CCTV, with 7 dividers	Installing a new CCTV can manage meetings, workshops, and training courses, with safety at the ICTC more successfully.	-	C
R12	2 lock-handles for partition	There is only one lock-handle for three partition at Multipurpose Hall, Seminar Rm E and F. (Two lock-handles are lost.) Sometimes, all three rooms need to be separated to organize two meetings at the same time. Each room needs one lock-handle.	-	C

Non-destructive Concrete Testing

The Team conducted a testing to review the strength of existing concrete structure with non-destructive concrete testing equipment.
The following data indicates the strength of concrete structure itself is intact and there is no structural defect on ICTC.

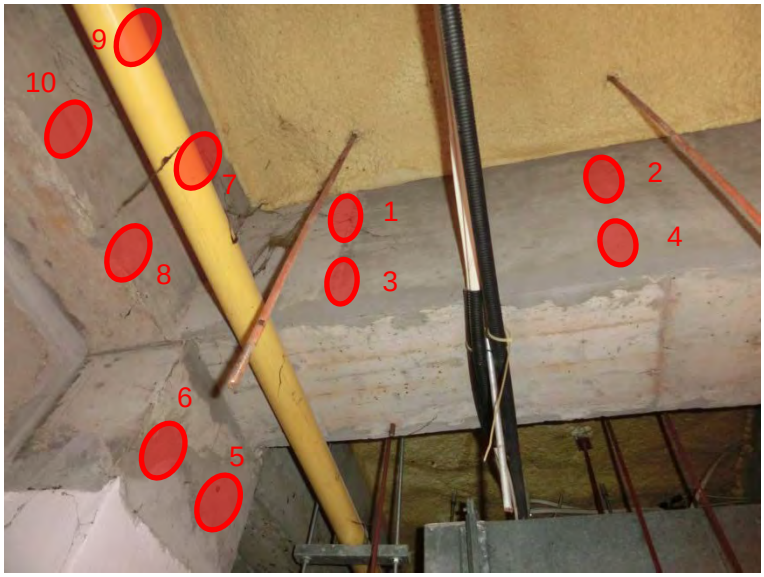
The testing device indicates three values to evaluate the condition of concrete.
Although the detailed explanation of the testing methods is omitted in this section, those three values are;

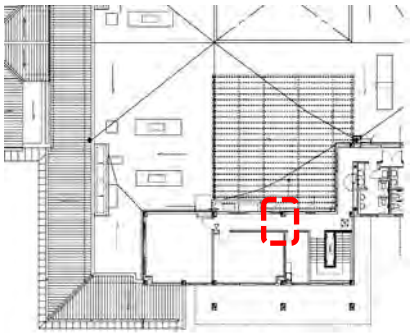
- STR: Basic Strength of Concrete expressed in N/mm2. The original design strength was specified as 21 (N/mm2). Above 21 (N/mm2) is deemed sufficient.
- INDEX: This value indicates the surface deterioration of the concrete.
- STAT: This value indicates the bonding strength between the aggregates and the cement of the concrete surface.

INDEX Value	Evaluation
IDX < 0.90	×
0.90 ≦ IDX ≦ 1.30	◎
1.30 ＜ IDX ≦ 1.50	○
1.50 ＜ IDX ＜ 2.00	△
2.00 ≦ IDX	×

STAT Value		Eval-ation
Active Side	Re-Active Side	
0	0	◎
≧1	0	△
0	≧1	×
≧1	≧1	×

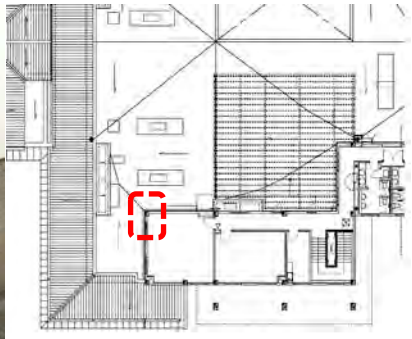
<Site 1:2nd Floor Corridor-1>





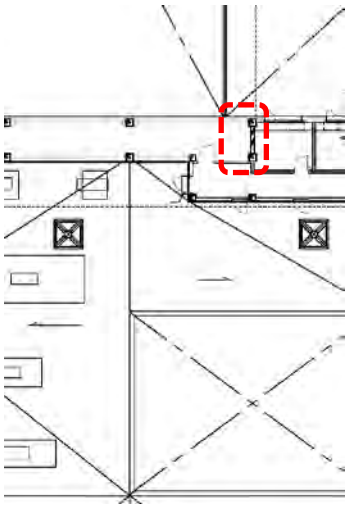
Location	Strength(N/mm2)		INDEX		STA_A	STA_R	
1	40.1	◎	1.16	◎	0	0	◎
2	38.89	◎	1.13	◎	0	0	◎
3	43.47	◎	1.18	◎	0	0	◎
4	34.51	◎	1.13	◎	0	0	◎
5	32.43	◎	1.15	◎	0	0	◎
6	37.32	◎	1.21	◎	0	0	◎
7	50.79	◎	1.19	◎	0	0	◎
8	40.96	◎	1.14	◎	0	0	◎
9	50.02	◎	1.21	◎	0	0	◎
10	50.09	◎	1.46	○	0	0	◎

<Site 2: 2nd Floor Meeting Room>



Location	Strength(N/mm2)		INDEX		STA_A	STA_R	
1	31.73	◎	1.26	◎	0	0	◎
2	35.12	◎	1.15	◎	0	0	◎
3	56.95	◎	1.13	◎	0	0	◎
4	54.48	◎	1.14	◎	0	0	◎
5	36.65	◎	1.08	◎	0	0	◎
6	37.16	◎	1.13	◎	0	0	◎
7	55.54	◎	1.37	◎	0	0	◎
8	52.24	◎	1.21	◎	0	0	◎
9	34.96	◎	1.34	○	0	0	◎
10	43.04	◎	1.11	◎	0	0	◎

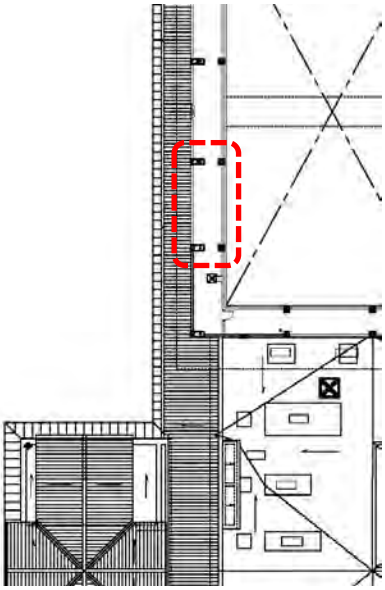
<Site 3: 2nd Floor Maintenance Corridor-4>



Location	Strength(N/mm2)		INDEX		STA_A	STA_R	
1	40.3	◎	1.18	◎	0	0	◎
2	38.48	◎	1.41	○	0	0	◎
3	42.99	◎	1.12	◎	0	0	◎
4	58.24	◎	1.17	◎	0	0	◎
5	42.05	◎	1.27	◎	0	0	◎
6	32.87	◎	1.09	◎	0	0	◎
7	39.94	◎	1.31	○	0	0	◎
8	41.34	◎	1.1	◎	0	0	◎
9	26.56	○	1.02	◎	0	0	◎
10	33.61	◎	1.25	◎	0	0	◎
11	28.72	○	1.2	◎	0	0	◎
12	41.39	◎	1.21	◎	0	0	◎
13	36.11	◎	1.1	◎	0	0	◎
14	44.65	◎	1.14	◎	0	0	◎
15	32.17	◎	1.25	◎	0	0	◎
16	36.86	◎	1.12	◎	0	0	◎
17	37.46	◎	1.09	◎	0	0	◎
18	35.73	◎	1.16	◎	0	0	◎
19	33.02	◎	1.1	◎	0	0	◎
20	44.24	◎	1.18	◎	0	0	◎
21	29.87	○	1.08	◎	0	0	◎

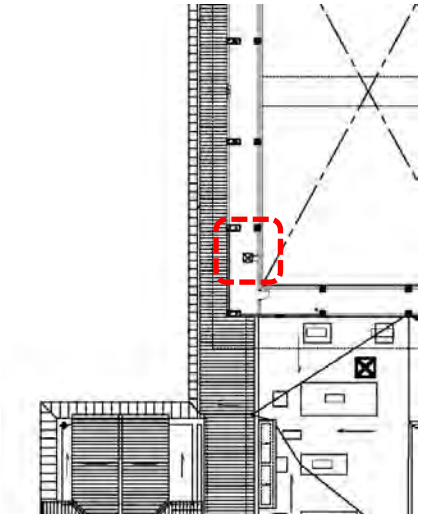
<Site 4: 2nd Floor Maintenance Corridor-3>

z



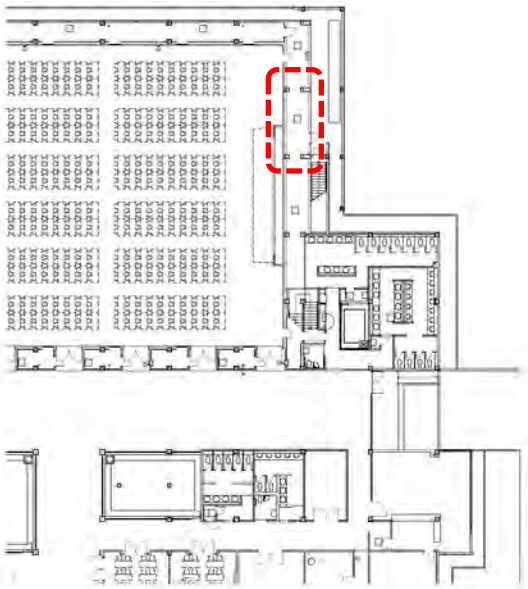
Location	Strength(N/mm2)		INDEX		STA_A	STA_R	
1	42.46	◎	1.26	◎	0	0	◎
2	38.93	◎	1.17	◎	0	0	◎
3	33.37	◎	1.15	◎	0	0	◎
4	34.01	◎	1.26	◎	0	0	◎
5	41.84	◎	1.14	◎	0	0	◎
6	27.97	○	1.36	○	0	0	◎

<Site 5: 3rd Floor Slab>



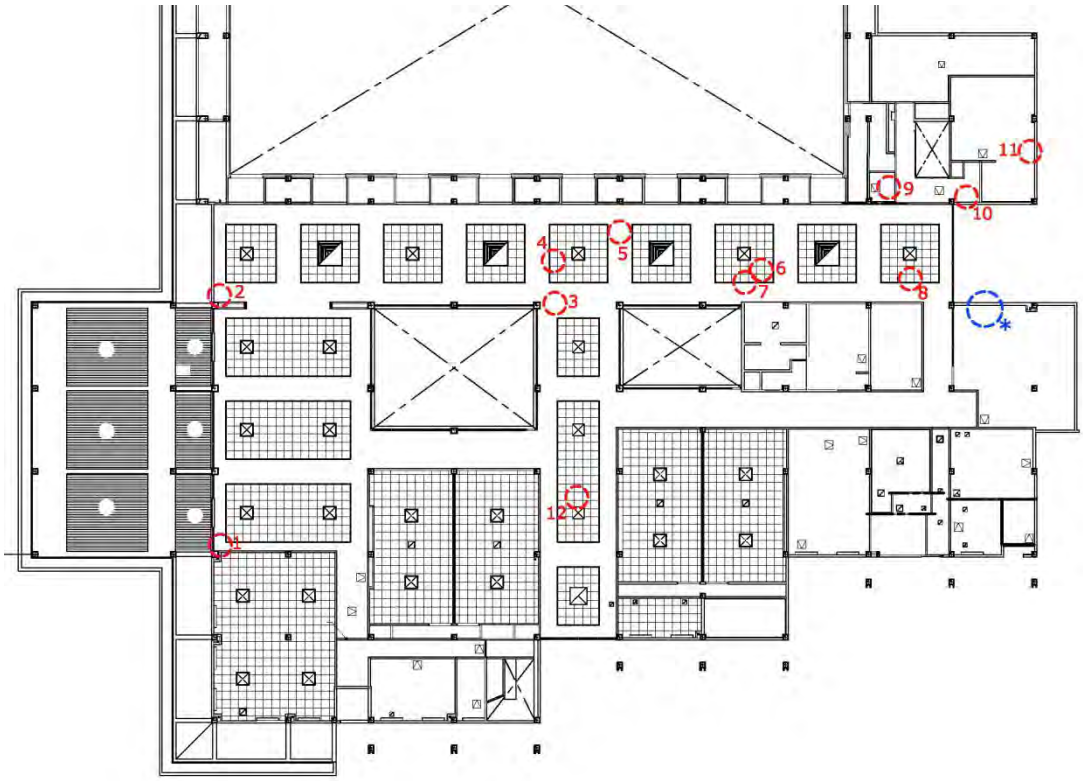
Location	Strength(N/mm2)		INDEX		STA_A	STA_R	
1	41.71	◎	1.15	◎	0	0	◎
2	41.54	◎	1.11	◎	0	0	◎
3	38.38	◎	1.3	◎	0	0	◎

<Site 6: Maintenance Corridor-1>

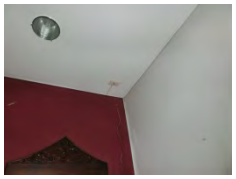
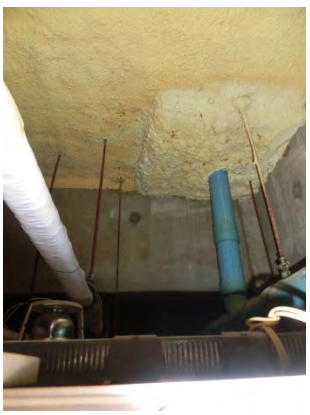


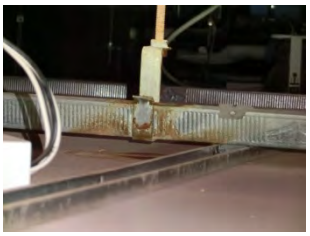
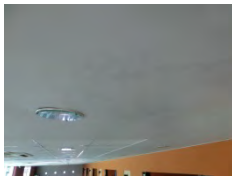
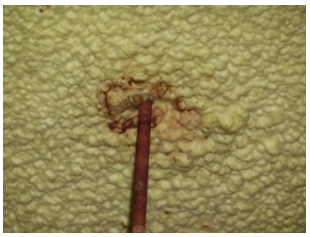
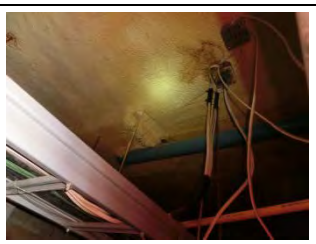
Location	Strength(N/mm2)		INDEX		STA_A	STA_R	
1	38.83	◎	1.08	◎	0	0	◎
2	32.21	◎	1.22	◎	0	0	◎
3	24.25	○	1.05	◎	0	0	◎
4	32.46	◎	1.14	◎	0	0	◎
5	49.71	◎	1.08	◎	0	0	◎
6	43.18	◎	1.22	◎	0	0	◎
7	43.78	◎	1.33	○	0	0	◎
8	32.6	◎	1.22	◎	0	0	◎
9	24.06	○	1.56	○	0	0	◎
10	26.89	○	1.36	○	0	0	◎
11	36.12	◎	1.07	◎	0	0	◎
12	39.66	◎	1.12	◎	0	0	◎
13	27.1	○	1.18	◎	0	0	◎
14	23.87	○	1.3	◎	0	0	◎
15	33.89	◎	1.08	◎	0	0	◎
16	45.79	◎	1.17	◎	0	0	◎

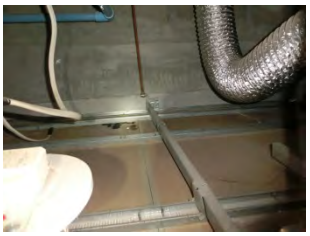
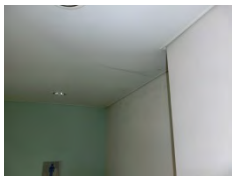
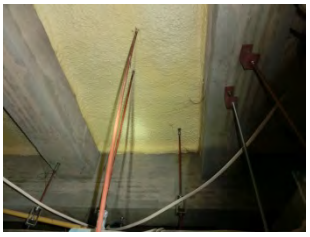
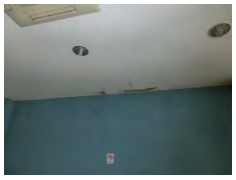
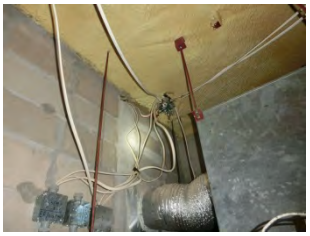
Ceiling stain locations and the ceiling space



<First Floor Reflected Ceiling Plan>

	Stain	Ceiling Space 1	Ceiling Space 2	Remarks
1	 <Entrance Hall>			Crack on the exterior wall and the leakage through the crack was observed.
2	 <Entrance Hall>			The water streak line on the wall was observed.

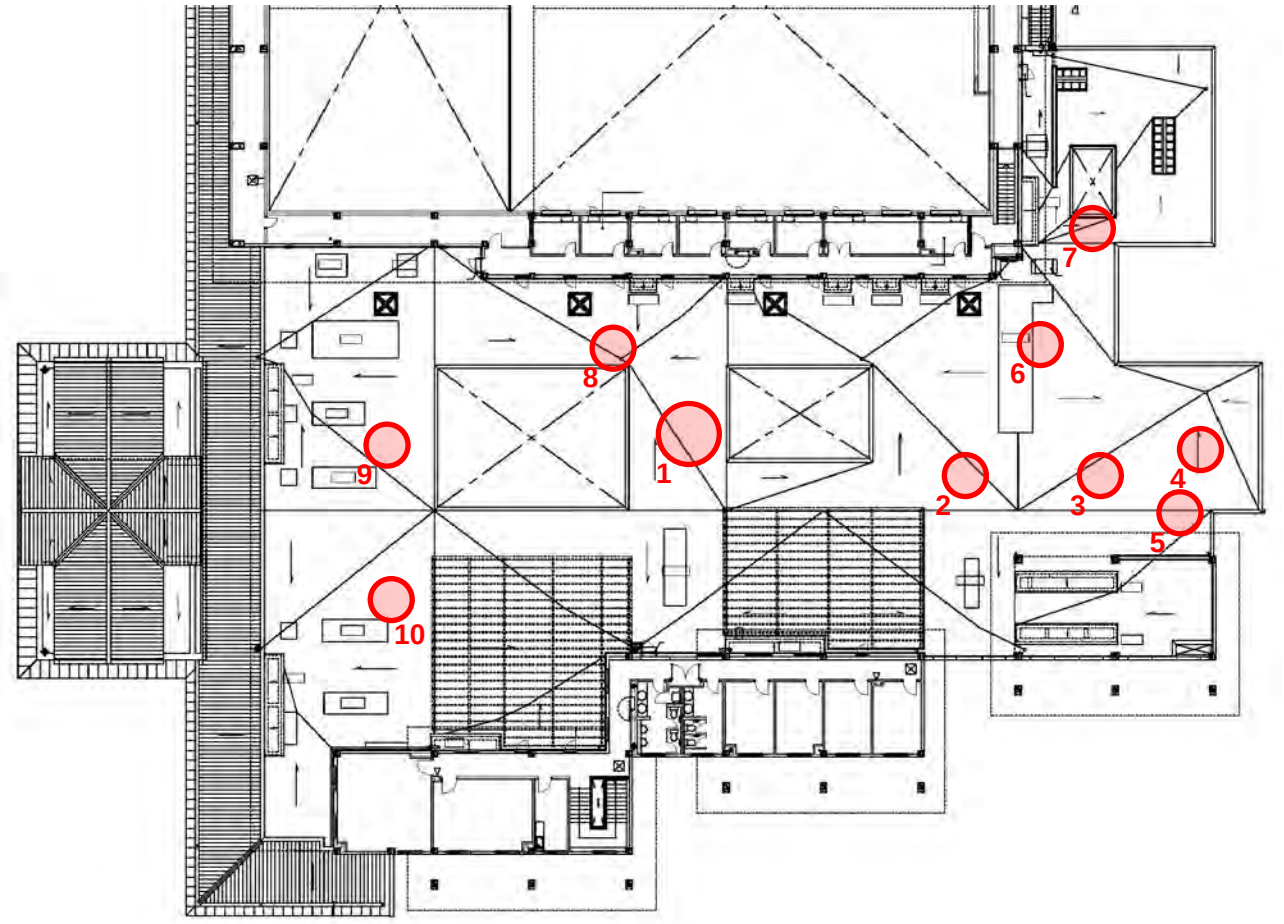
3	 <Foyer>			Leakage through the ceiling suspension rod was observed.
4	 <Foyer>			Water streak and hairline crack on the beam was observed.
5	 <Foyer>			The stain is located underneath the HVAC duct. Condensation around the duct may have caused the water drops.
6	 <Foyer>			Leakage through ceiling suspension rod was observed.
7	 <Foyer>			Leakage through the junction box was observed. It may cause a short circuit of the electrical system.
8	 <Foyer>			Relatively wider leakage around the slab was observed.

9	 <H.P. W.C.>			Actual source of leakage could not be identified due to the space limitation.
10	 <WC-M>			Actual source of leakage could not be identified due to the space limitation.
11	 <WC-M>			Actual source of leakage could not be identified due to the space limitation.
12	 <Foyer>			The cause of the stain seems to be the condensation water drops from the air conditioner.
*	 <Cafeteria>			Actual source of leakage could not be seen due to the lack of access hatches.

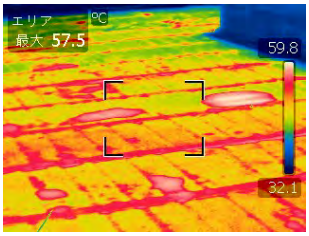
<Observed Waterproof Membrane Air pockets>

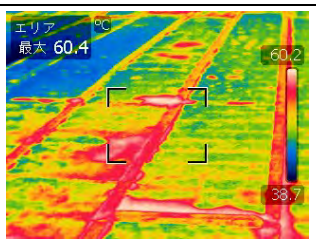
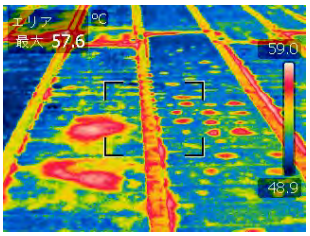
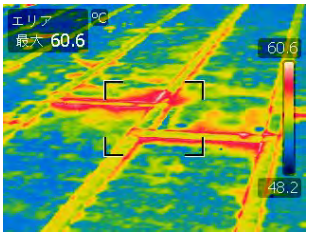
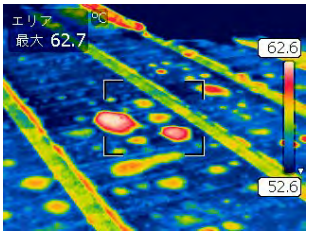
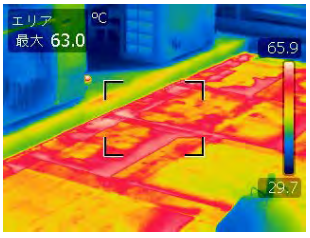
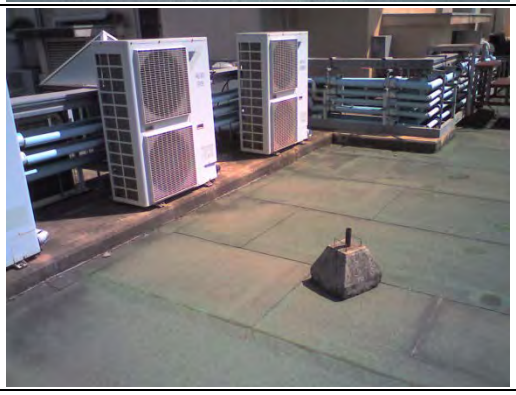
Due to the air trapped inside the waterproof membrane, the air pocket shows different temperature than the other properly adhered areas. These air pockets could be potential causes for retaining water between the waterproofing membrane and the concrete slab.

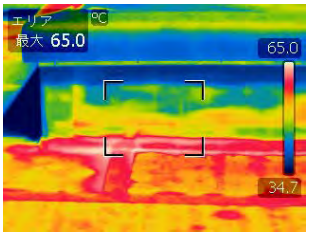
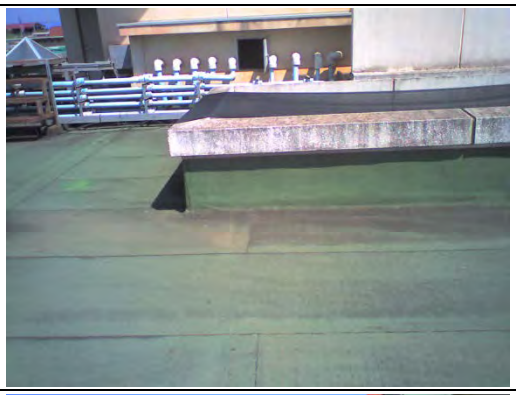
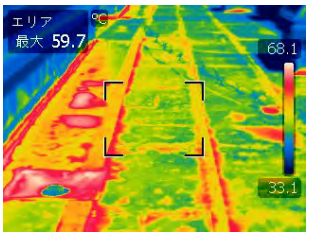
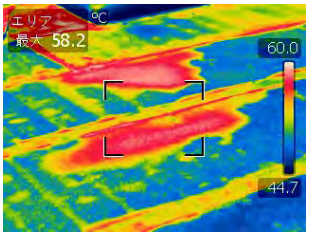
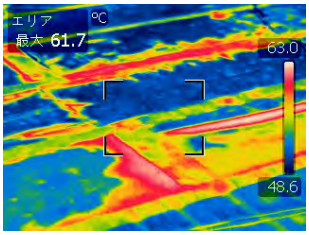
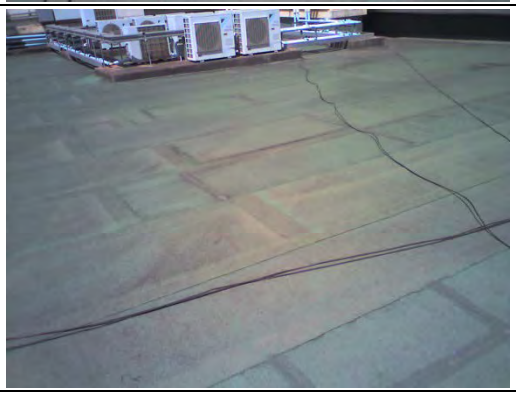
As it can be seen in the following roof plan, the air pockets were observed all over the flat roof.



<Partial Roof Plan>

	Thermography	Picture
1		

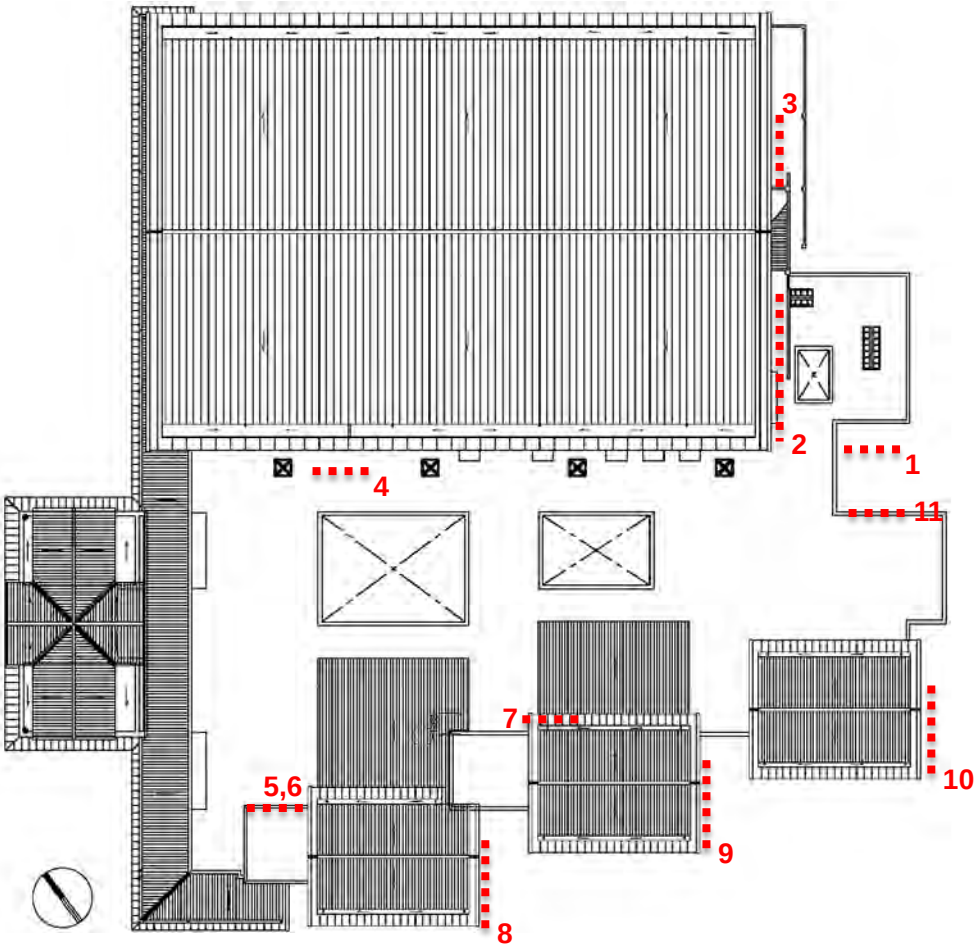
2	 エリア 最大 60.4 ℃ 60.2 38.7	
3	 エリア 最大 57.6 ℃ 59.0 48.9	
4	 エリア 最大 60.6 ℃ 60.6 48.2	
5	 エリア 最大 62.7 ℃ 62.6 52.6	
6	 エリア 最大 63.0 ℃ 65.9 29.7	

7	 エリア ℃ 最大 65.0 65.0 34.7	
8	 エリア ℃ 最大 59.7 68.1 33.1	
9	 エリア ℃ 最大 58.2 60.0 44.7	
10	 エリア ℃ 最大 61.7 63.0 48.6	

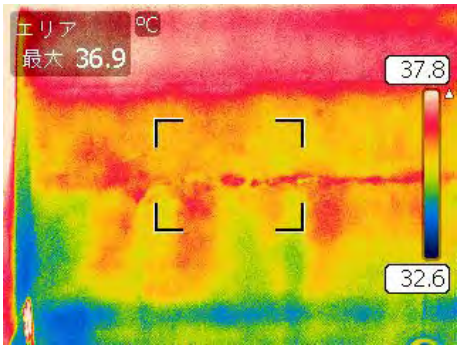
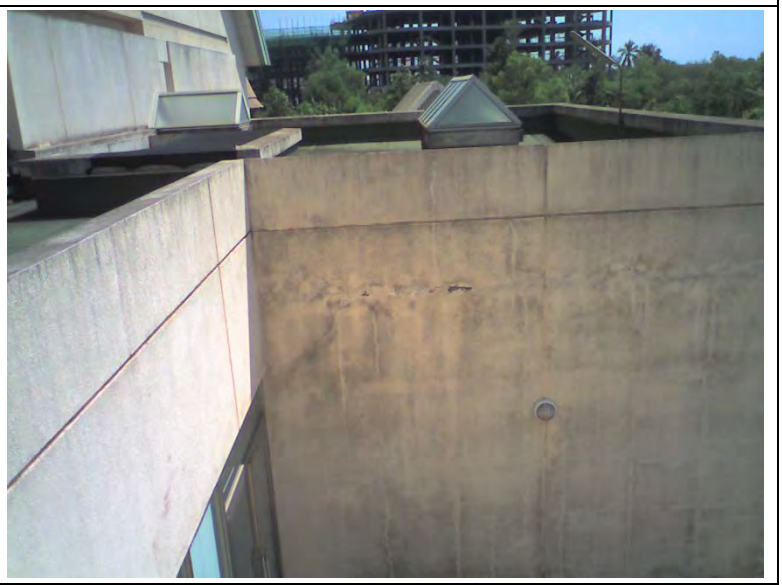
<Exterior wall cracks>

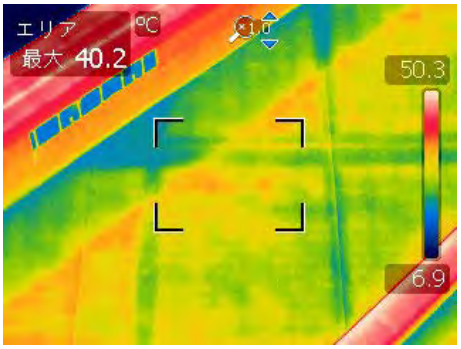
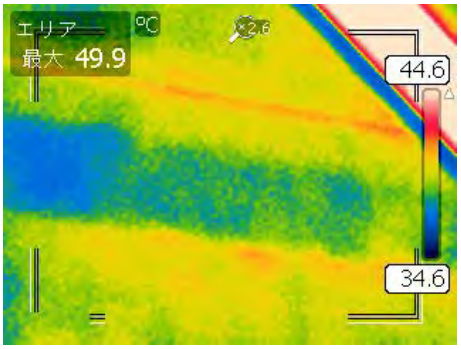
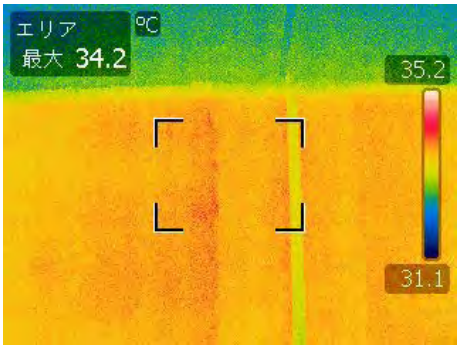
Hair cracks on the exterior walls were observed throughout the building. The following samples indicate only a part of larger cracks observed.

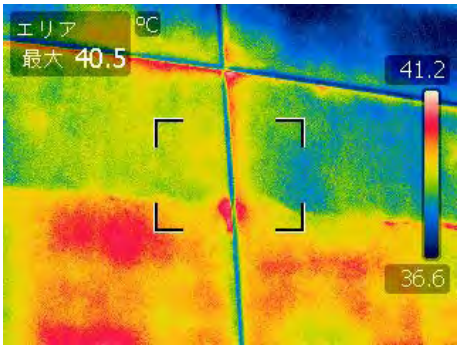
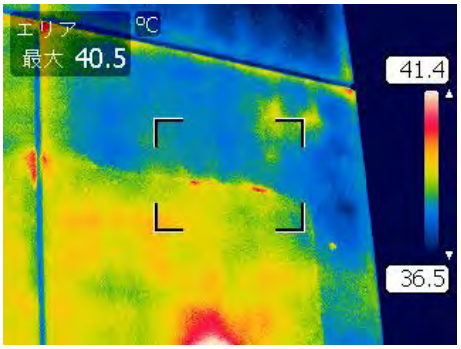
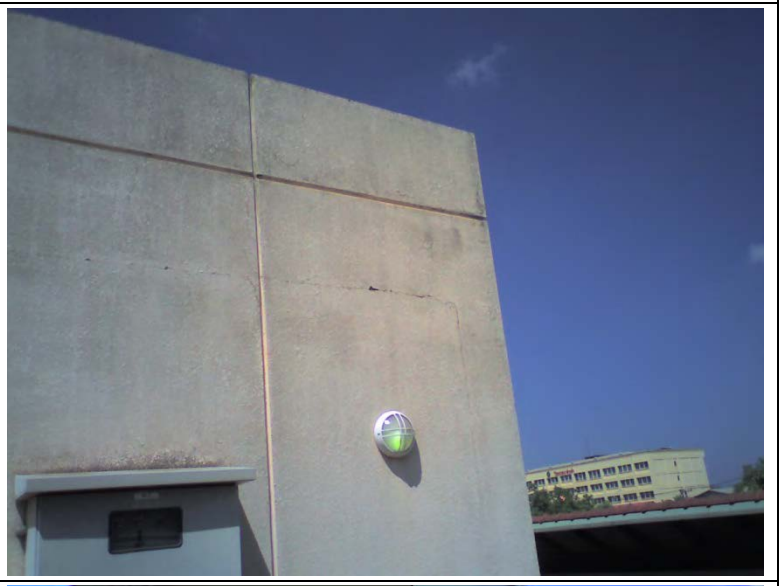
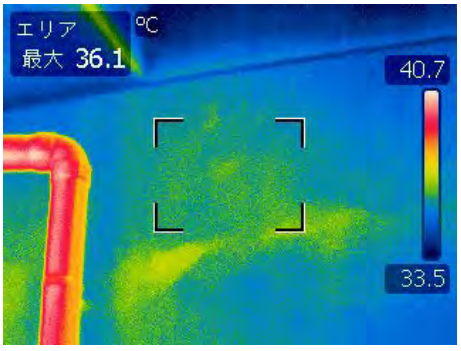
The thermographic picture indicates the temperature differences of the surface. The differences are caused by various reasons such as the material differences behind the surface. Different temperatures could cause different expansion or movement and could lead to cause a crack along the border.

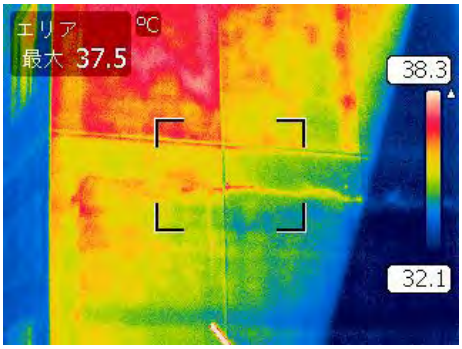
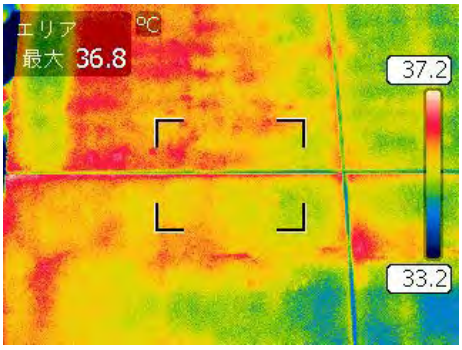


<Roof Plan>

	Thermography	Picture
1		

2	 エリア 最大 40.2 °C 50.3 6.9	
3	 エリア 最大 49.9 °C 44.6 34.6	
4	 エリア 最大 34.2 °C 35.2 31.1	

5	 エリア 最大 40.5 °C 41.2 36.6	
6	 エリア 最大 40.5 °C 41.4 36.5	
7	 エリア 最大 36.1 °C 40.7 33.5	

8	 エリア 最大 37.5 ℃ 38.3 32.1	
9	 エリア 最大 36.8 ℃ 37.2 33.2	
10	 エリア 最大 45.3 ℃ 54.9 20.3	

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