

# DEVELOPMENT OF INSPECTION METHODS FOR INTERIOR FINISH IN STATIONS

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## 1. OUTLINE

There was no maintenance standard for interior finish of station in Japan. Therefore, Asano taiseikiso engineering made the standards with Tokyo Metro or other 7 railway companies in accordance with situations of each company, and carry out inspection, soundness diagnosis and repair work. The paper describes development of new inspection methods for interior finish in stations, results of inspections and analysis of them.

## 2. IMPROVEMENT OF INSPECTION PROCEDURES

Table 1 shows traditional inspection procedures of a certain railway company. A Visual inspection was applied. However, as a result allowed a high number falling object incidents to occur.

Therefore, inspection procedures were improved for introducing new inspection procedures, shown in Table.2.

## 3. NEW INSPECTION PROCEDURES

The introduced procedures are contact check, prodding test for ceilings, hammering test, pulling test for walls, shaking test, stepping test for floor, etc.



Fig.1 prodding test



Fig.2 pulling test

Table 1. Traditional inspection procedures

Risk level	Evaluation criteria	Procedures	Action
A	No abnormality	a visual inspection (and followed by contact inspections of the places with cracks or lifting)	None
B	Although abnormality is noted, it is not considered urgent and placed under observation.		None
C	Abnormal. Repair work is needed.		Simple repair Emergency work

Table 2. New inspection procedures

Risk level	Criteria (examples)	Action
AA	Contact inspection of the part with lifting detects movement.	Immediate repair
A1	No movement is felt, but there is combined deterioration involving cracking, etc.	Repair within 1 year
A2	There is no combined deterioration, and the affected area is no less than 20% of the examined area or no less than 1 m <sup>2</sup> per site.	Repair within 3 years
B	The affected area is 5-20% of the examined area or between 0.5 to 1 m <sup>2</sup> per site.	Monitoring of the progression of deterioration
C	The affected area is less than 5% of the examined area or less than 0.5 m <sup>2</sup> per site.	Only check to know the degree of progress in the future
S	No abnormality	No abnormality

## 4. CONCLUSION

The number of falling object accidents in a certain railway company has steadily decreased with the introduction of new inspection methods, shown in Fig.3.



Fig.3 Effect of New Inspection Procedures

To maintain the safety of customers, extend the life of the structure and keep stable operation, it is important to conduct periodic inspections and make repairs or reinforcements based on the results of the inspections.

## REFERENCES

- [1] Japanese Building Standards Law, Article12-1.
- [2] Japanese Fire Service Act, Article17-3-3.