5. Conclusions

We proposed a method to obtain through simple means the response displacement of the elevated shed when applying L2sp II ground motion by organizing the effects of rocking and the translational direction in order to consider the coupled behavior of the viaduct and the elevated shed, and by conducting analyses. The findings were as follows:

- Although the influence on the elevated shed response due to the rocking of the station viaduct could not be ignored, we showed that the rocking correction factor was lower in the ramen-structure-typed shed compared to the single column type.
- We theoretically examined the influence of the interaction in the translation direction and arranged for the influence factors on the response displacement of the elevated shed at the time of earthquake input. We also showed that the response displacement can be estimated by classifying the characteristic values and targets of viaduct and elevated shed.
- Using the interaction in the translational direction and the rocking correction factor, we created a response displacement spectrum that considers the coupled behaviors of the viaduct and the elevated shed confirmed its validity.

Although not included in this report, we also proposed a method to calculate the deformation capacity of the elevated shed from the components of the elevated shed. Therefore, by estimating the response displacement using the proposed response displacement spectra and comparing it with the deformation capacity, it is possible to check the safety of an elevated shed during L2sp II ground motion.

6. References

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