

Abstract:

A newly-developed simulation program, NeEX, enables quick prediction of the nonlinear seismic response of buried distribution networks in gas and water supply systems, which are characterized by geometry in a complex linear form. As a key feature of NeEX, the novel algorithm which is used to simulate the seismic response of the network idealizes the network in segments. Idealization of networks in segments makes it possible to model networks using far fewer elements than in finite element analysis (FEA). While the accuracy of NeEX is on the same level as FEA, computational time is only 1/5 000–10 000 that with FEA. The

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4.2 Calculation Assumptions

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4.3 Calculation Accuracy

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5. Conclusion

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References

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4.4 Computational Speed

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