Experiences in Japan Tsukuba and E-Defense

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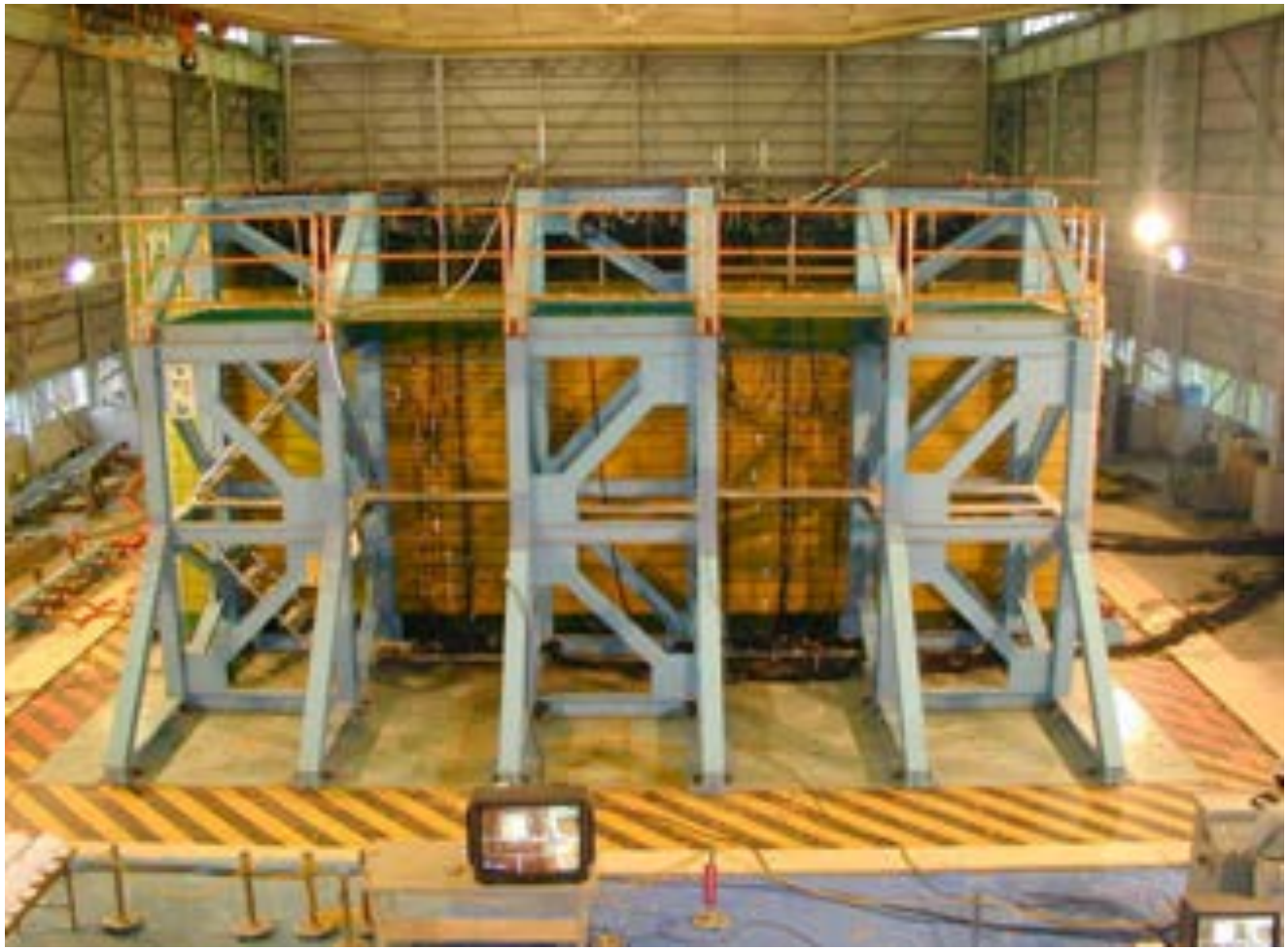
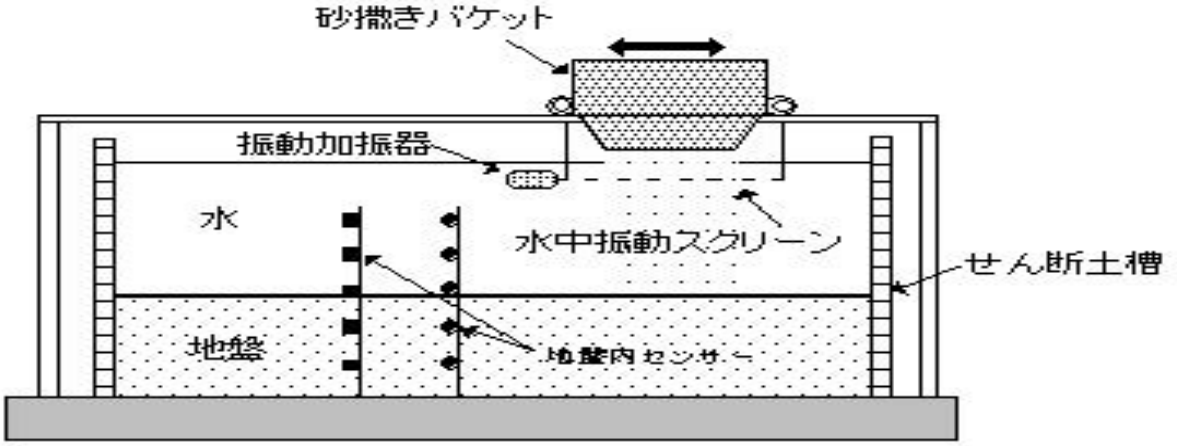
Tsukuba Experiences

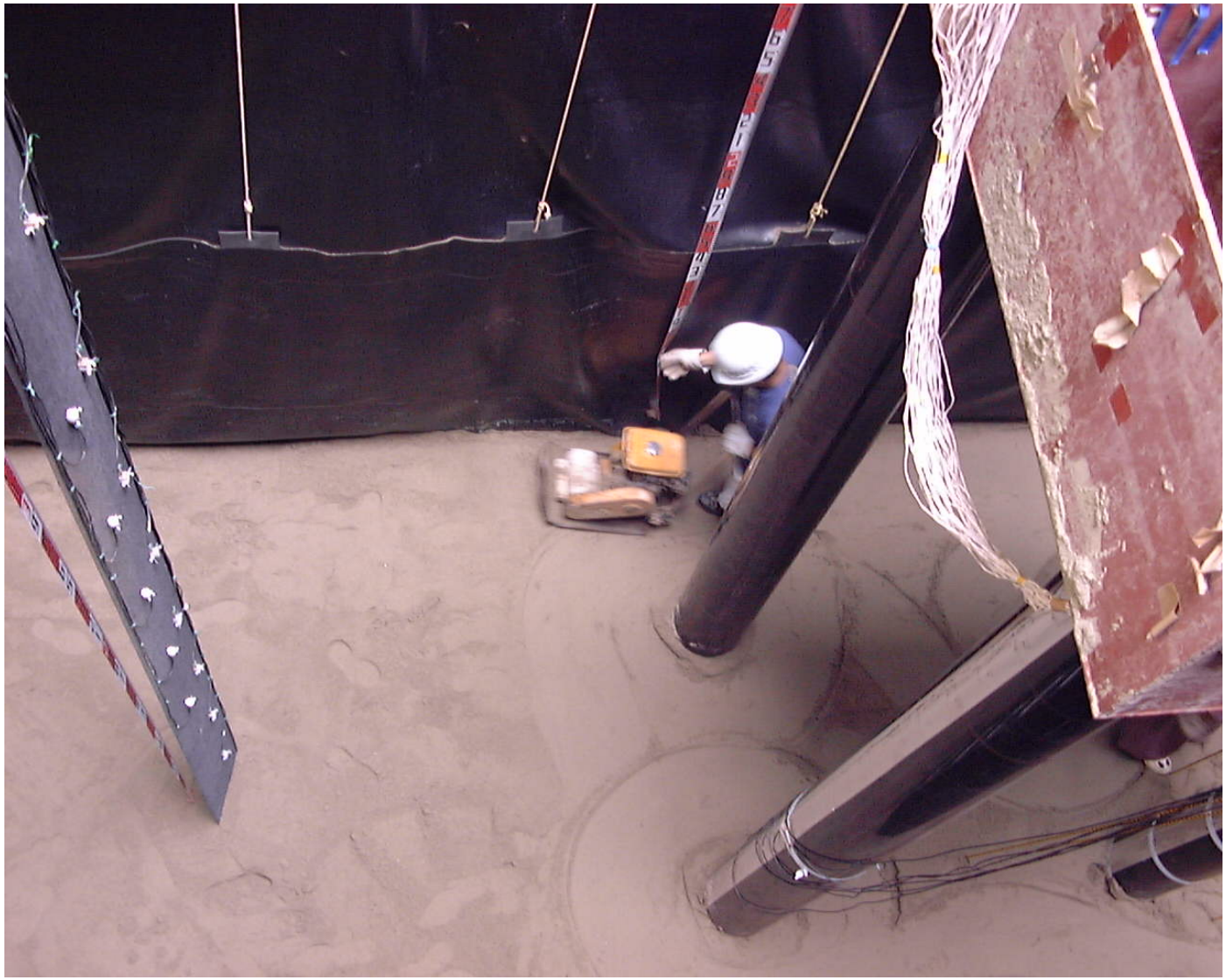
shake table: 12m×12m, Laminar Box: 12mL×3.5mD×6mH
Max. acc. 500gal , vel: 75cm/s, Disp. 30cm



2 types of making sand bed



図−3.4　振動スクリーンを用いた地盤作成法の概念



Sensor setting

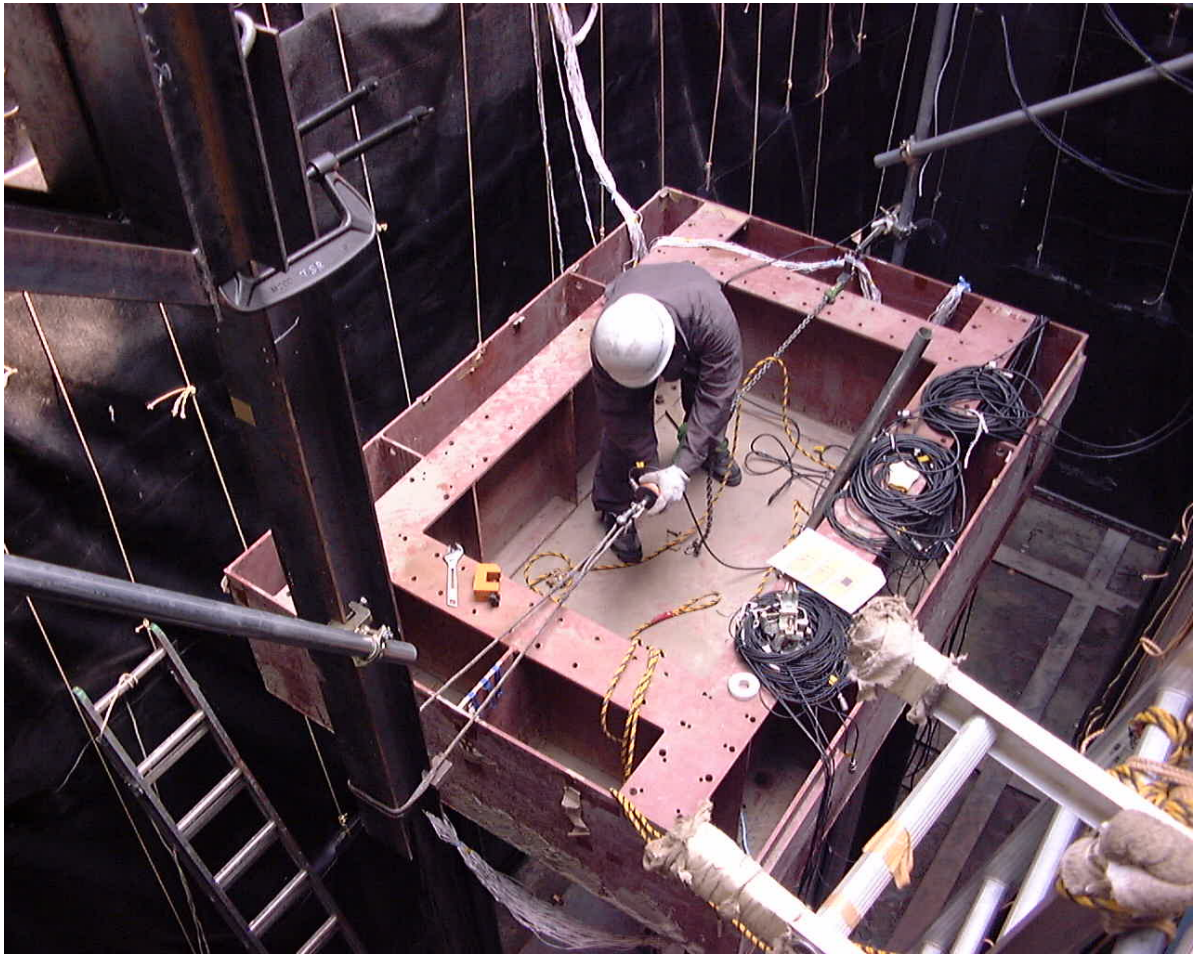
Sensor setting

Density measure

Pile with strain gage

Install pile

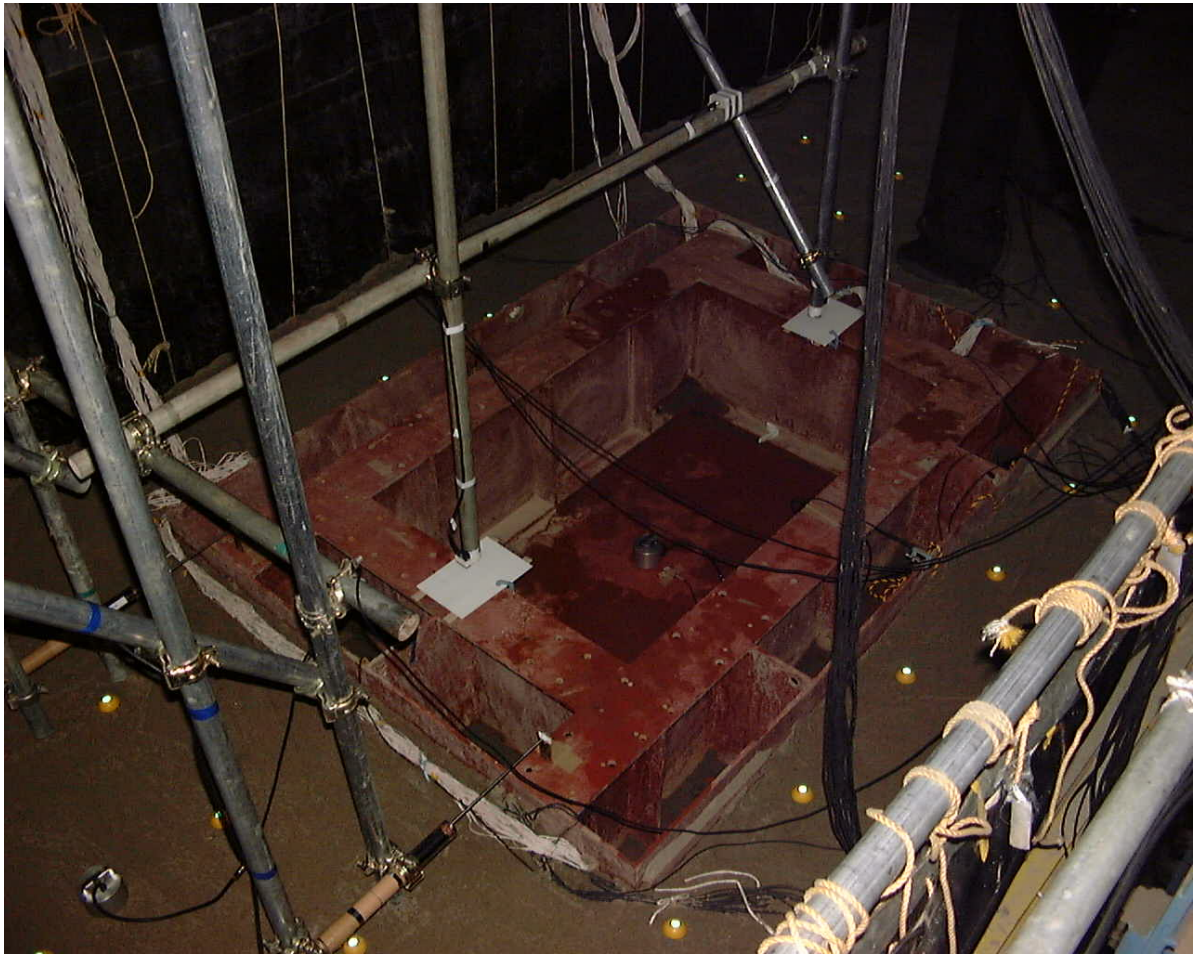
Loading test



Cone test

S wave measure

Before shaking



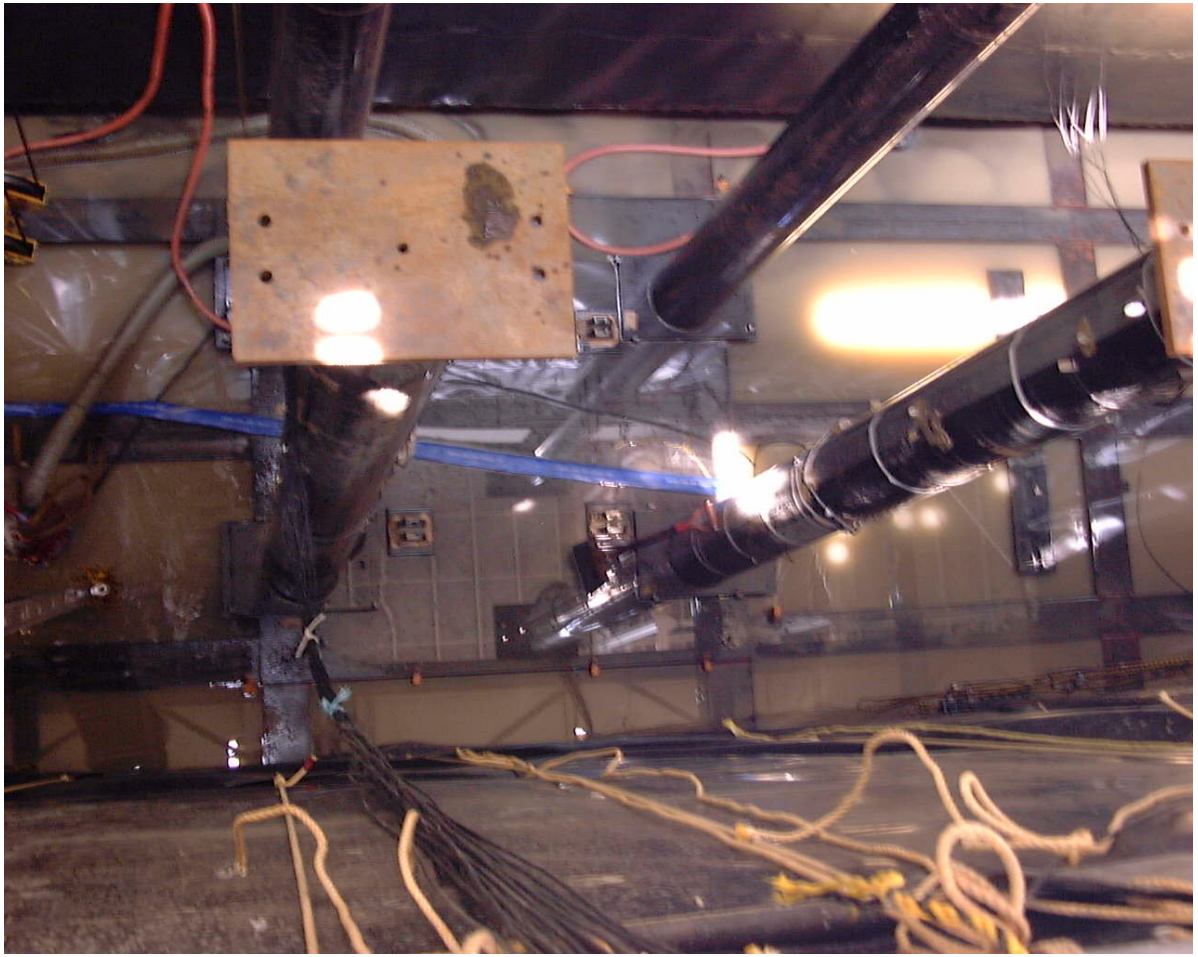
After shaking

Remove sand

Remove sand


5 t

After remove sand



Sand bed making

Drop in water;

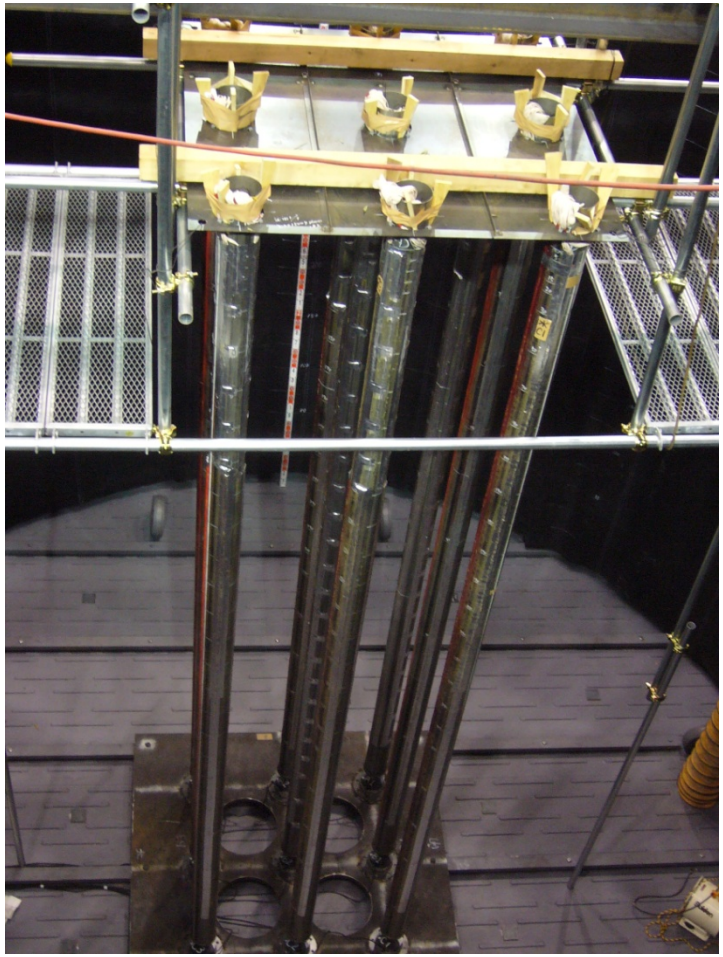
- High saturation condition
- Cannot control density

Dry compaction

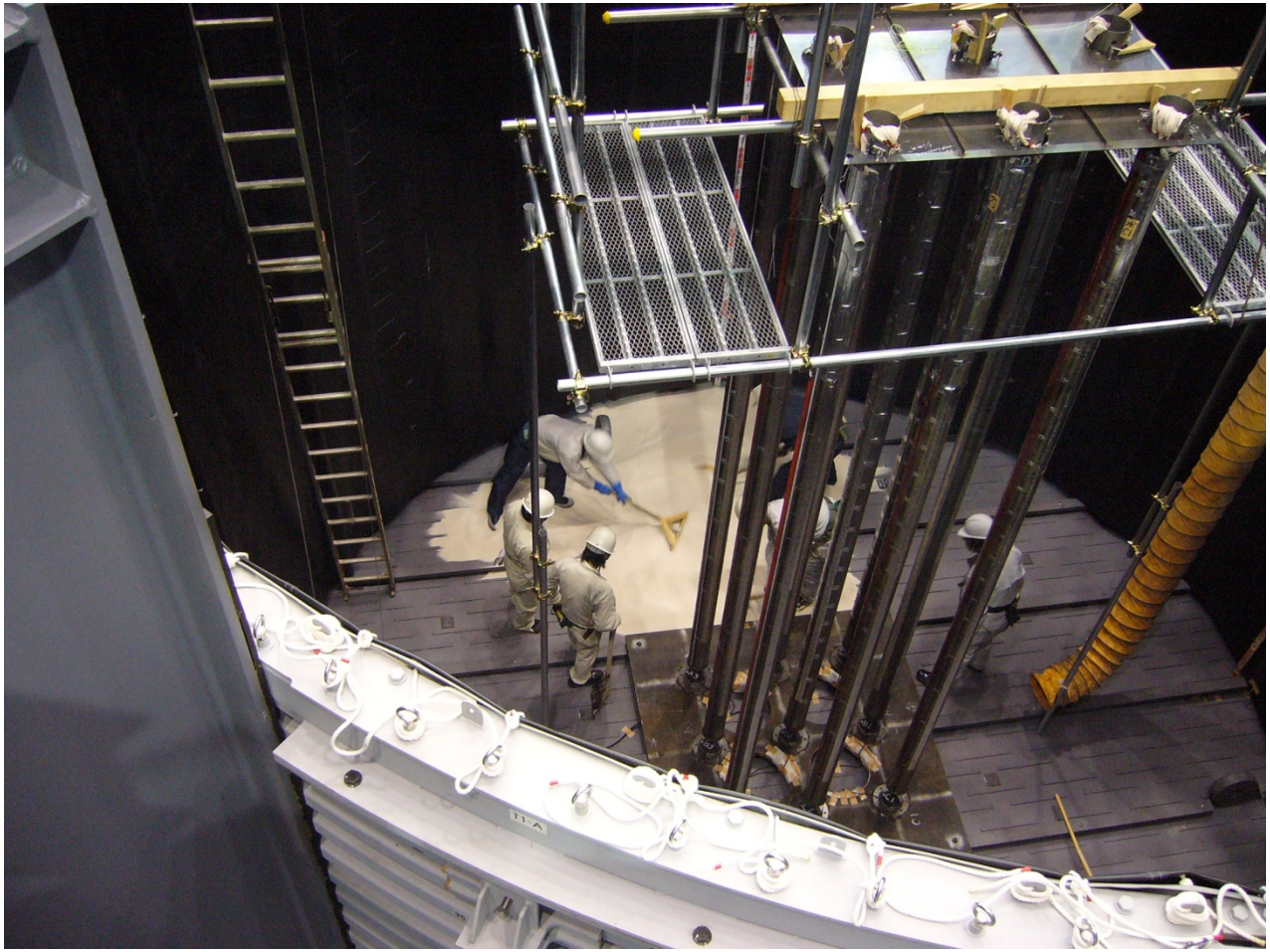
- Control density
- Low saturation condition

E-Defense Experiments

Set piles



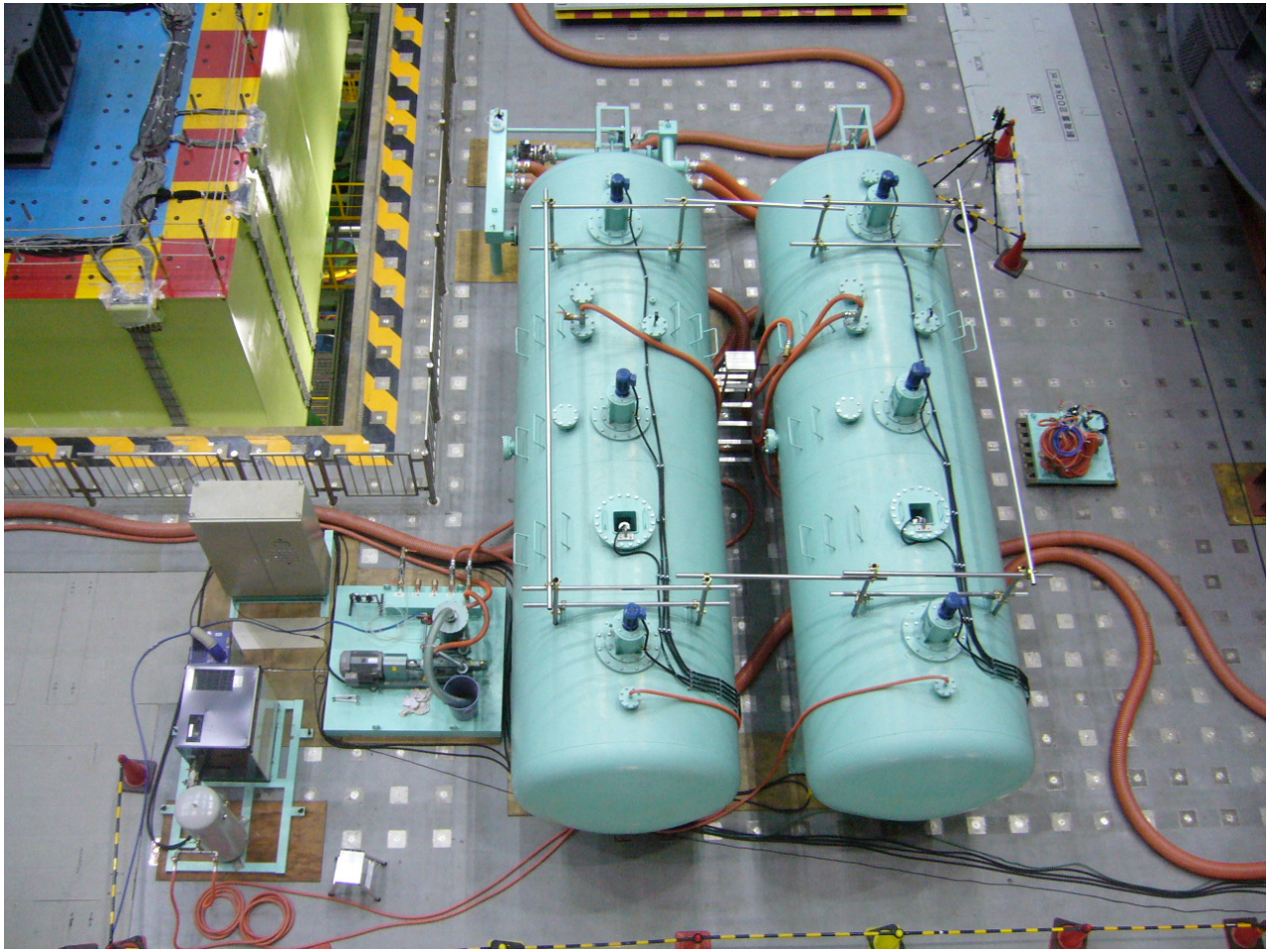
Making sand bed



Laminar box with sand bed

Vacum chamber

Water tank



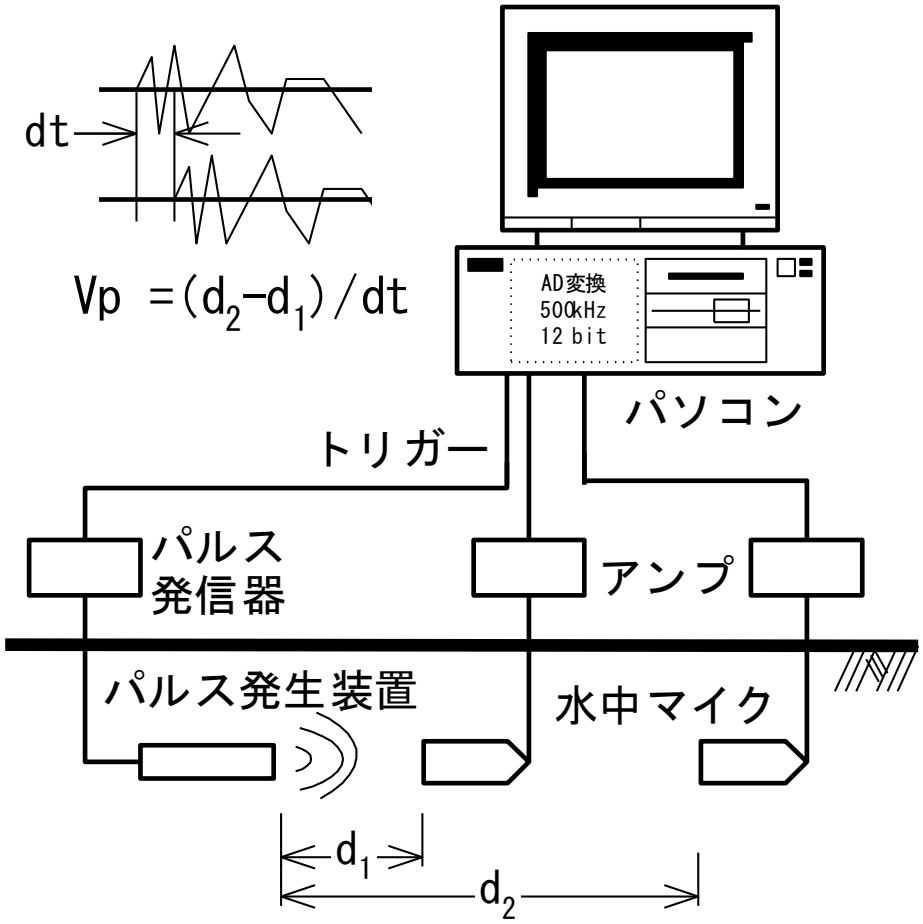
Before test

Some of development

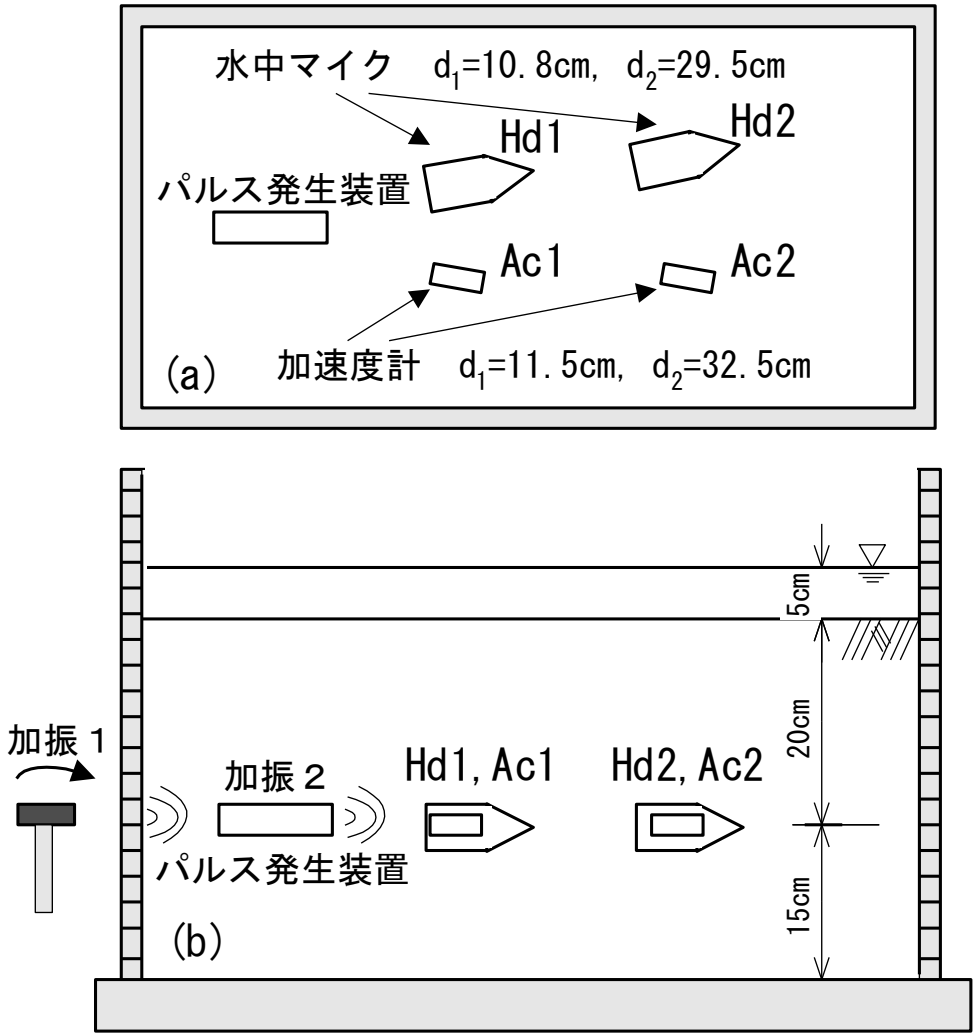
Saturation evaluation; P wave measurement

Displacement measure; rotation meter

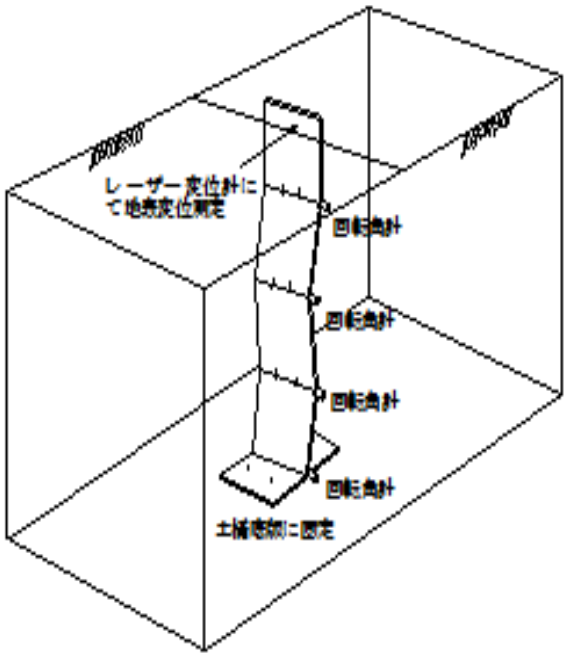
Shear Modulus; Microtremor measure



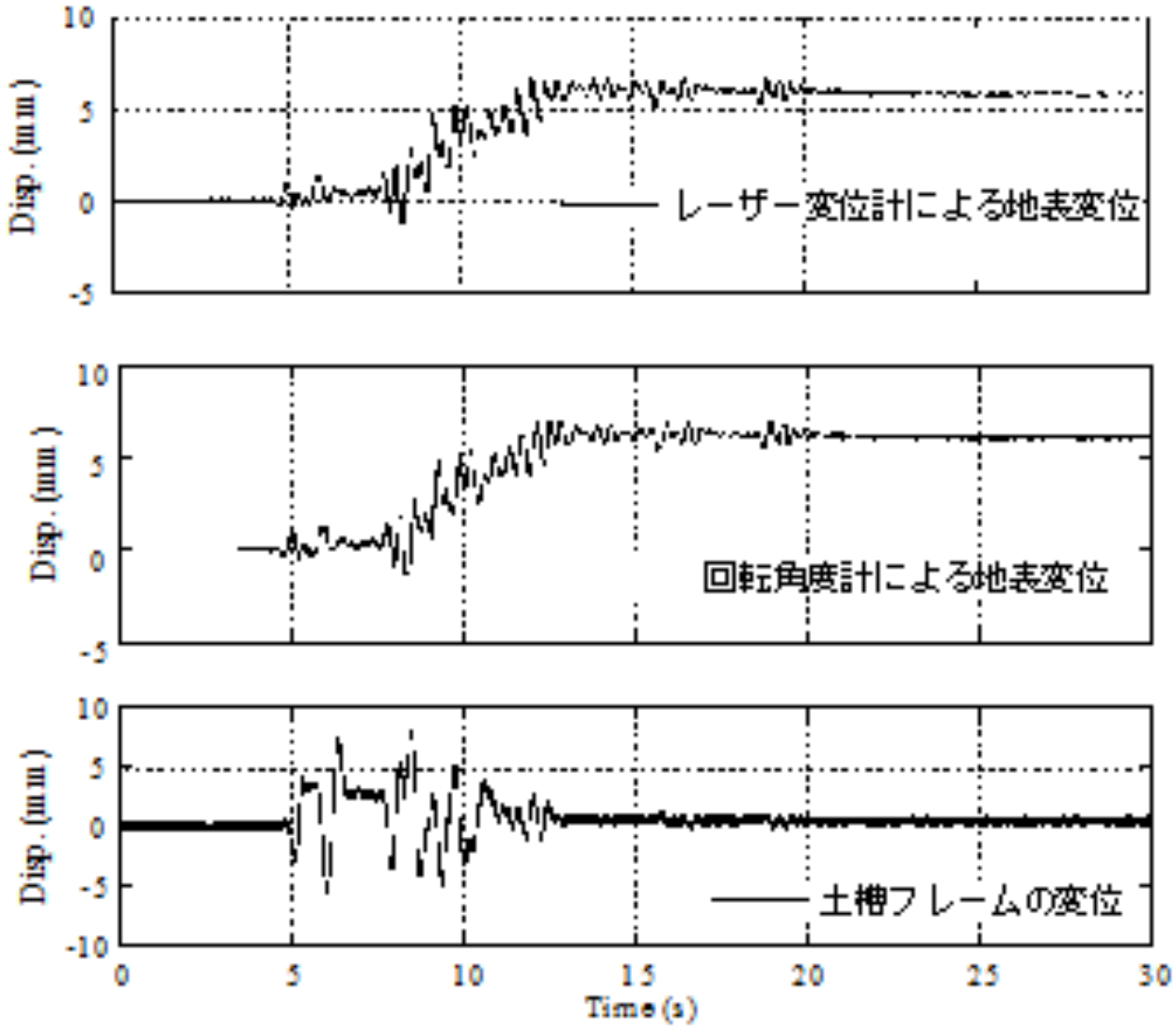
図－１　音波を用いたＰ波速度計測システムの概略


水中マイク　d_1=10.8cm,　d_2=29.5cm
Hd1
Hd2
パルス発生装置
Ac1
Ac2
(a)
加速度計　d_1=11.5cm,　d_2=32.5cm
5cm
20cm
15cm
加振１
加振２
Hd1, Ac1
Hd2, Ac2
パルス発生装置
(b)

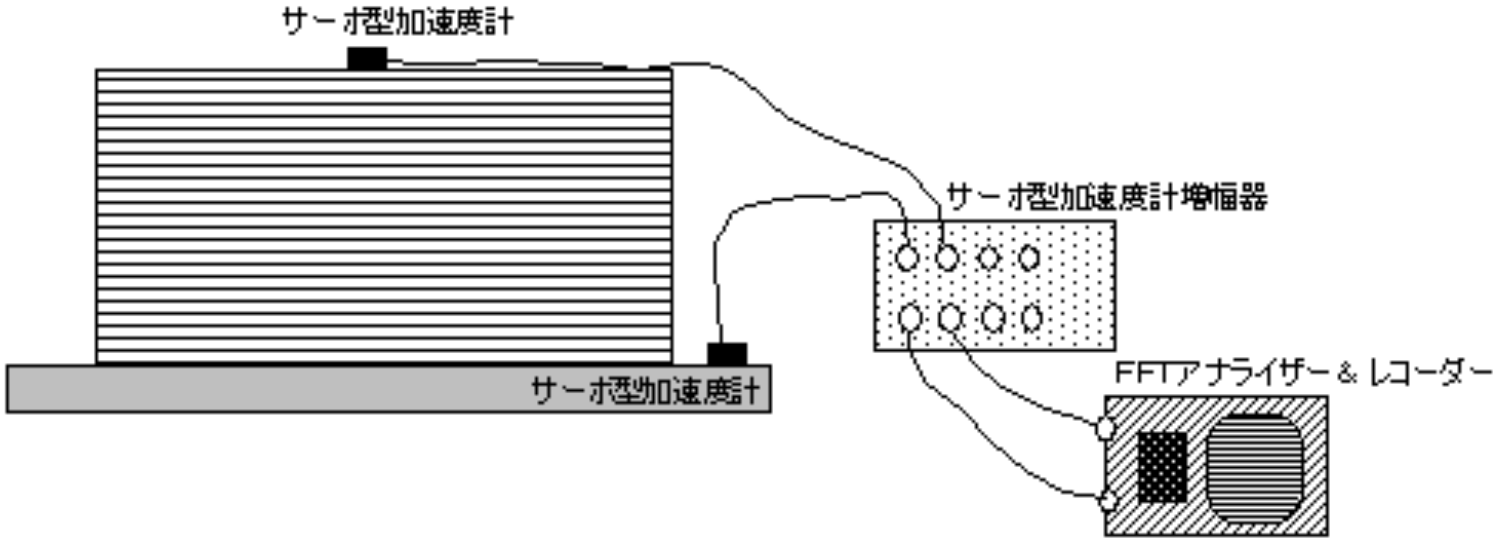
Displacement measure

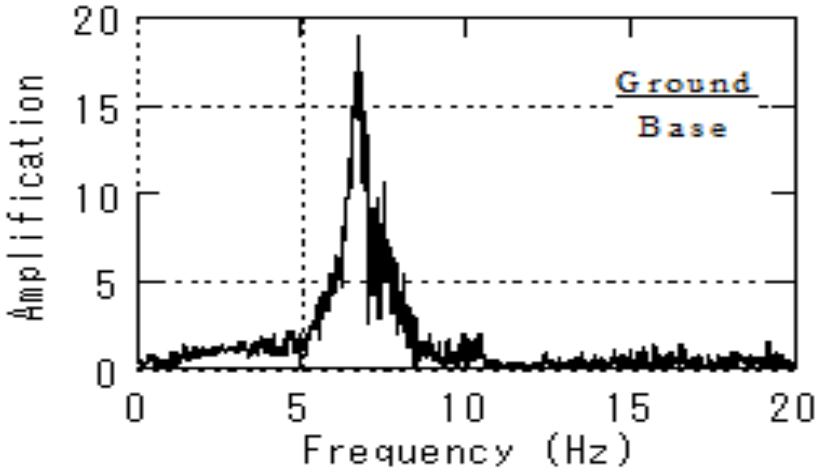


displacement



Microtremor measurement





My feeling

- In Tsukuba, the one-dimensional shaking table test was conducted and many results were got.
- On E-defense, the two-dimensional and three-dimensional shaking table test was conducted.
- In the two-dimensional and three-dimensional experiment, the action of the foundation and a structure is complicated and analysis reached to an extreme of difficulty. Although 20 or more papers are announced in the experiment in Tsukuba, only several papers are announced in the experiment of E-defense.
- Since a real large experiment of the foundation and a structure is seldom carried out even if it sees it globally, it is considered that it can raise many results with first of all simplifying an experimental condition if possible.

Thank you!