

Description of Requirement

Earth Pressure Cells

Purpose and Scope

The Airfields and Pavements Branch (APB) has been tasked by the U.S. Navy to evaluate the performance of pavement structures when subjected to simulated aircraft loading. As part of this research Earth Pressure Cells (EPC) are required to measure pressure at various locations in the pavement structure.

Requirement

The required earth pressure cells are the hydraulic type. They consist of two stainless flat plates welded together around their periphery to leave a narrow space between them. This space is filled with a de-aired hydraulic oil that is connected hydraulically to a pressure transducer where the oil pressure is converted to an electrical signal which is transmitted through a signal cable to the readout location. Shown in Figure 1 is the schematic for the required earth pressure cell. The earth pressure cell must also meet the following requirements. The measuring surface shall be circular in shape and shall be 9 in. in diameter (see Figure 1).

1. The transducer housing shall attach via stainless steel tubing.
2. Thirty feet of instrument cable shall be attached to each transducer housing.
3. Electrical output shall be a semiconductor transducer with mV/V output.
4. The quantity and measurement ranges required are summarized in Table 1.
5. Earth pressure cells shall be shipped to:

U.S Army Corps of Engineers
Attn: Tommy Carr / Hangar 2
3909 Halls Ferry Road
Vicksburg, MS 39180

Figure 1. Schematic of required earth pressure cell.

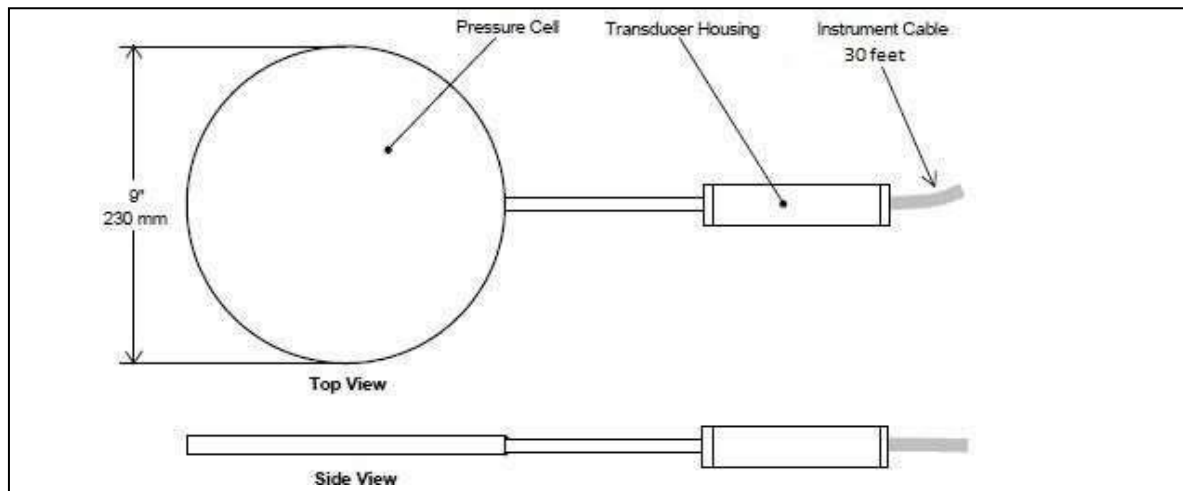


Table 1. Summary of required EPC quantity and measurement ranges.

Measurement Range	Quantity
2.5 mPa full scale	15
1.0 mPa full scale	15

¹ **Electrical Output = Semiconductor Transducer With Output milliVolt per Volt(mV/V)**

1. Additional Technical Documents Included In Contract Submittal Requirements:

- a. Signed Letter on Manufactures Letterhead That Identifies the Submitter By Business Name As An Approved/Registered as Primary or Reseller of Specified Earth Pressure Cells.
- b. Signed Letter on Submitter's Letterhead Indicating the Ability To Provide Direct In-House After Sale Technical Support by Phone and Email of Specified Earth Pressure Cells.
- c. Example of Typical Calibration Reports That Meets The Provided Specifications.
- d. Example of Pressure Calculations That Meets The Provided Specifications.
- e. Example of Thermistor Derivation, Equation, and Look-Up Tables That Meets The Provided Specifications.
- f. Wiring Charts/Tables That Meets The Provided Specifications.
- g. Documentation of Temperature/Barometric Effects On Earth Pressure Cells For Specified Earth Pressure Cells.

2. Shipping Costs:

Must Be Included in Quote.

3. EPC Delivery Date:

Delivery shall be made no later than 60 days from contract award.