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LAMPIRAN



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PROGRAM STUDI MAGISTER TEKNIK SIPIL

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NIM : D012211011

LAMPIRAN

Tgl Percobaan : April 2022

Menimbang agregat yang akan digunakan untuk pembuatan mortar (Air, Semen, dan Pasir)



Timbangan



Mencampur material yang digunakan menggunakan alat mixer.

1. Campur air dan semen dan aduk selama ± 30 detik dengan kecepatan nomor 2.
2. Kemudian masukkan pasir dan aduk ± 2 menit dengan kecepatan nomor 2.
3. Setelah itu aduk manual untuk meratakan yang menempel di dinding wadah, dan dilanjutkan dengan mengaduk ± 2 menit dengan kecepatan nomor 3.



Mixer



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Menguji dan mengukur diameter mortar (*flow mortar*), dari hasil pengujian diameter flow mortar diperoleh diameter flow mortar 20 cm.

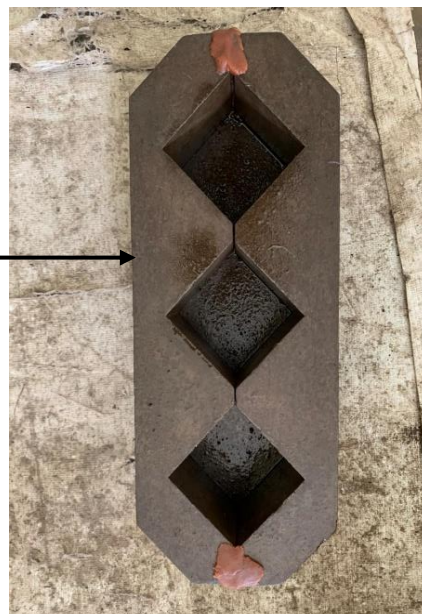
Alat yang digunakan :

1. Table Flow
2. Alat Ukur / Caliper



Table Flow

Menyiapkan cetakan mortar (silinder ukuran 5/10 cm, dan kubus 5/5 cm)



Cetakan Kubus



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Mencetak mortar dengan memasukkan mortar kedalam cetakan yang di bagi menjadi 2 lapis dimana setiap lapis di padatkan dengan 8 kali tumbukan. Dan mendinginkan mortar sampai mengeras \pm 24 jam.



Setelah didiamkan \pm 24 jam. Mortar dikeluarkan dari mould cetakan dan diperiksa kondisi mortar dalam kondisi baik tanpa ada yang pecah ataupun retak. Jumlah benda uji yang dibuat adalah 9 silinder 5/10 cm dan 29 kubus 5 cm x 5 cm x 5 cm.





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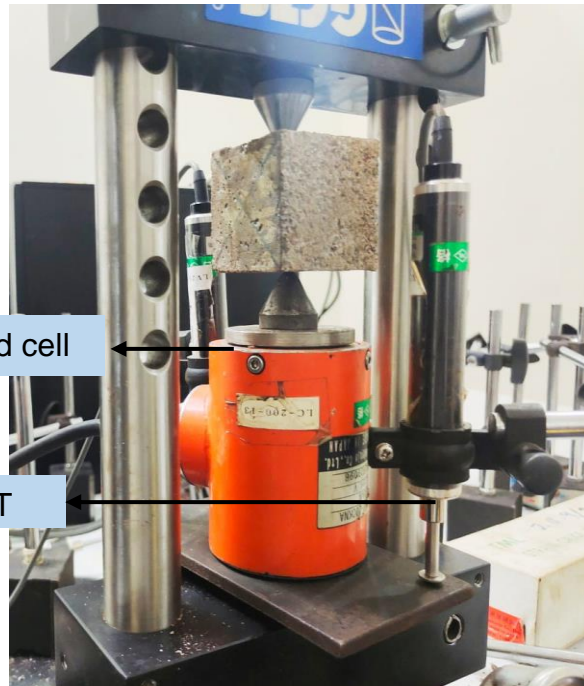
Tgl Percobaan : April 2022

Metode curing air adalah metode perawatan yang dilakukan pada mortar.



Curing Benda Uji

Pengujian point load menggunakan load cell untuk mengukur pembebanan, LVDT untuk mengukur regangan, dan data logger untuk mengakuisisi data.



Load cell

LVDT



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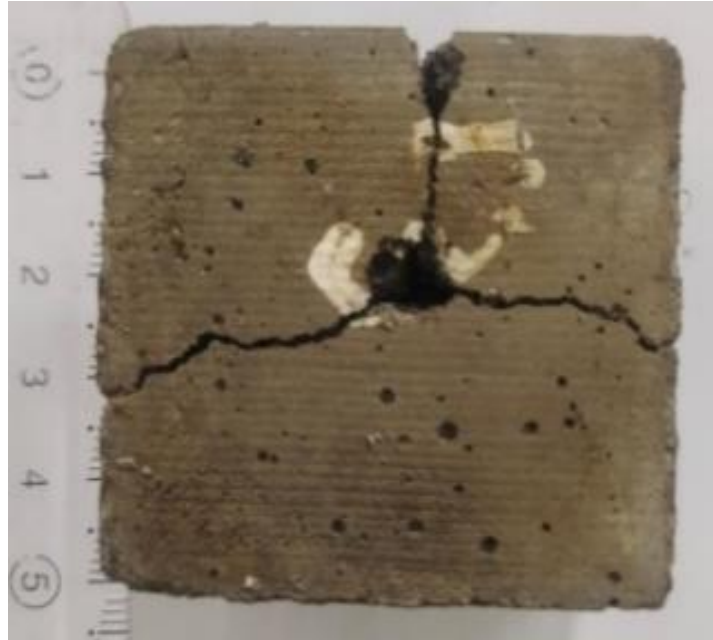
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Pola retak mortar akibat point load.



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Contoh Perhitungan Beban Titik

Sampel 1 (Hari ke_7) Fas 0,53

Diketahui :

$$P = 1.666 \text{ kN}$$

$$W = 50 \text{ mm}$$

$$D = 50 \text{ mm}$$

Ditanyakan :

Nilai I_s ?

Penyelesaian :

$$D_e = \sqrt{\frac{4 D W}{\pi}} = \sqrt{\frac{4 \cdot 50 \cdot 50}{\pi}} = 56.433 \text{ mm}$$

$$F = \sqrt{\frac{D_e}{50}} = \sqrt{\frac{56.4358}{50}} = 1.062$$

$$I_s = \frac{P}{D_e^2} = \frac{1666}{56.4358^2} = 0.52 \text{ MPa}$$

$$I_s (50) = F \cdot I_s = 1.062 \times 0.52 = 0.56 \text{ MPa}$$

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Tabel Hasil Perhitungan

Umur	Variasi	Diameter (mm)	Width (mm)	Beban (kN)	De ²	De	Point Load Index (Mpa)	F	is (50), MPa	Rata - Rata (MPa)	Strength Designation (ASTM)
7 hari	0.63	50	50	-1.000	3185	56.43	0.31	1.06	0.333	0.34	medium
		50	50	-1.066	3185	56.43	0.33	1.06	0.356		
		50	50	-1.599	3185	56.43	0.50	1.06	0.533		
28 hari	0.63	50	50	-1.666	3185	56.43	0.52	1.06	0.556	0.55	medium
		50	50	-1.699	3185	56.43	0.53	1.06	0.567		
		50	50	-2.999	3185	56.43	0.94	1.06	1.000		
90 hari	0.63	50	50	-2.932	3185	56.43	0.92	1.06	0.978	0.96	medium
		50	50	-2.666	3185	56.43	0.84	1.06	0.889		

Umur	Variasi	Diameter (mm)	Width (mm)	Beban (kN)	De ²	De	Point Load Index (Mpa)	F	is (50), MPa	Rata - Rata (MPa)	Strength Designation (ASTM)
7 hari	0.53	50	50	-1.666	3185	56.433	0.523	1.062	0.56	0.53	medium
		50	50	-1.466	3185	56.433	0.460	1.062	0.49		
		50	50	-1.666	3185	56.433	0.523	1.062	0.56		
28 hari	0.53	50	50	-1.999	3185	56.433	0.628	1.062	0.67	0.72	medium
		50	50	-2.066	3185	56.433	0.649	1.062	0.69		
		50	50	-2.399	3185	56.433	0.753	1.062	0.80		
90 hari	0.53	50	50	-3.132	3185	56.433	0.983	1.062	1.04	1.14	high
		50	50	-3.332	3185	56.433	1.046	1.062	1.11		
		50	50	-3.798	3185	56.433	1.193	1.062	1.27		



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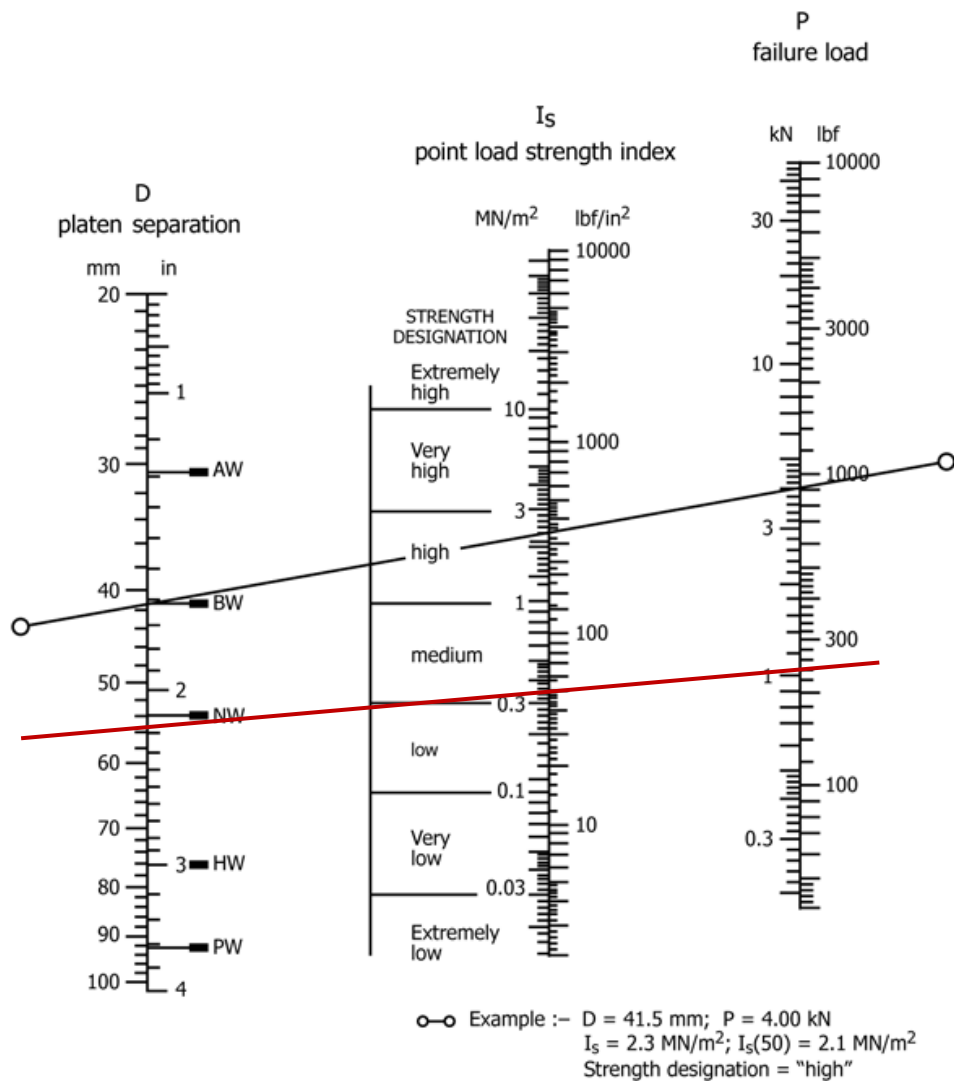
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Sampel 1 (Hari Ke _7) Fas : 0.63

$D_e = 56.43 \text{ mm}$

$P = 1.000 \text{ KN}$

$I_s = 0.333 \text{ Mpa (Medium)}$





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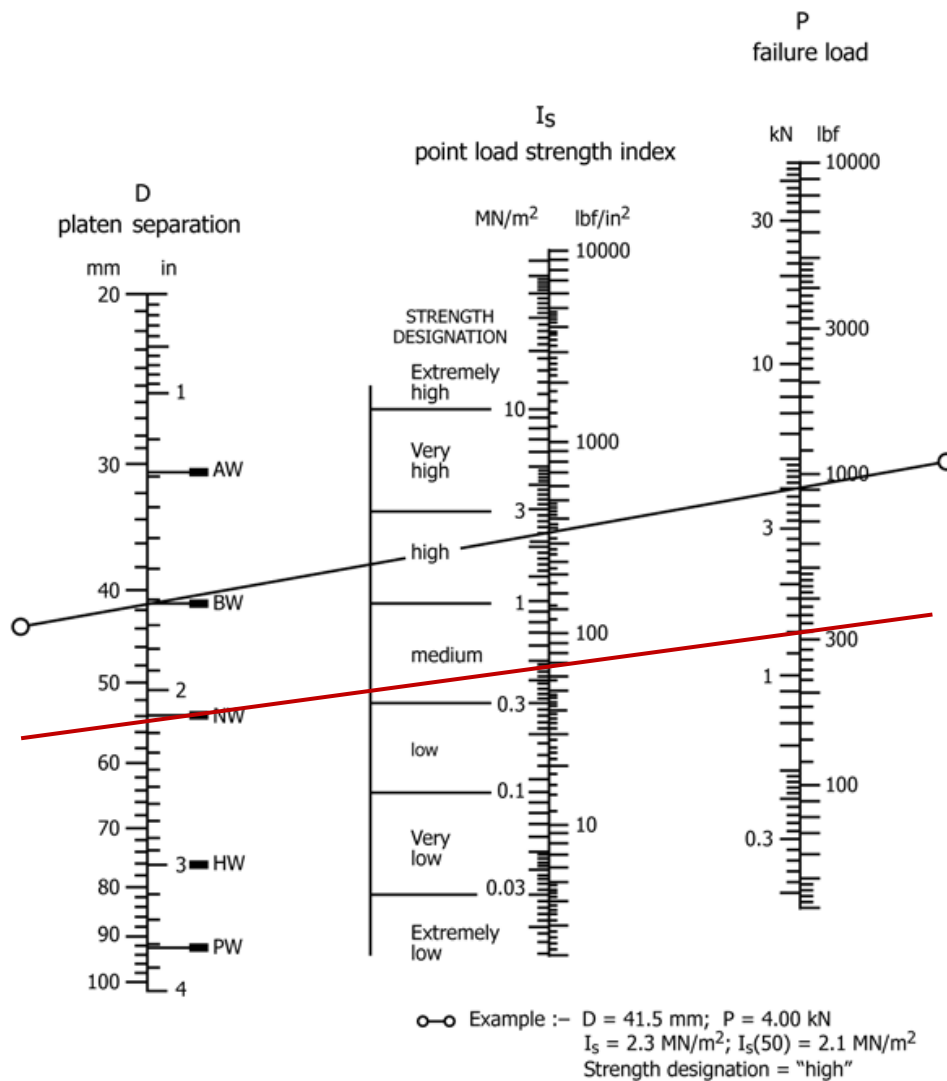
Tgl Percobaan : Jumat, 11 Maret 2022

Sampel 1 (Hari Ke_28) Fas : 0.63

$D_e = 56.43 \text{ mm}$

$P = 1.599 \text{ KN}$

$I_s = 0.533 \text{ Mpa (Medium)}$





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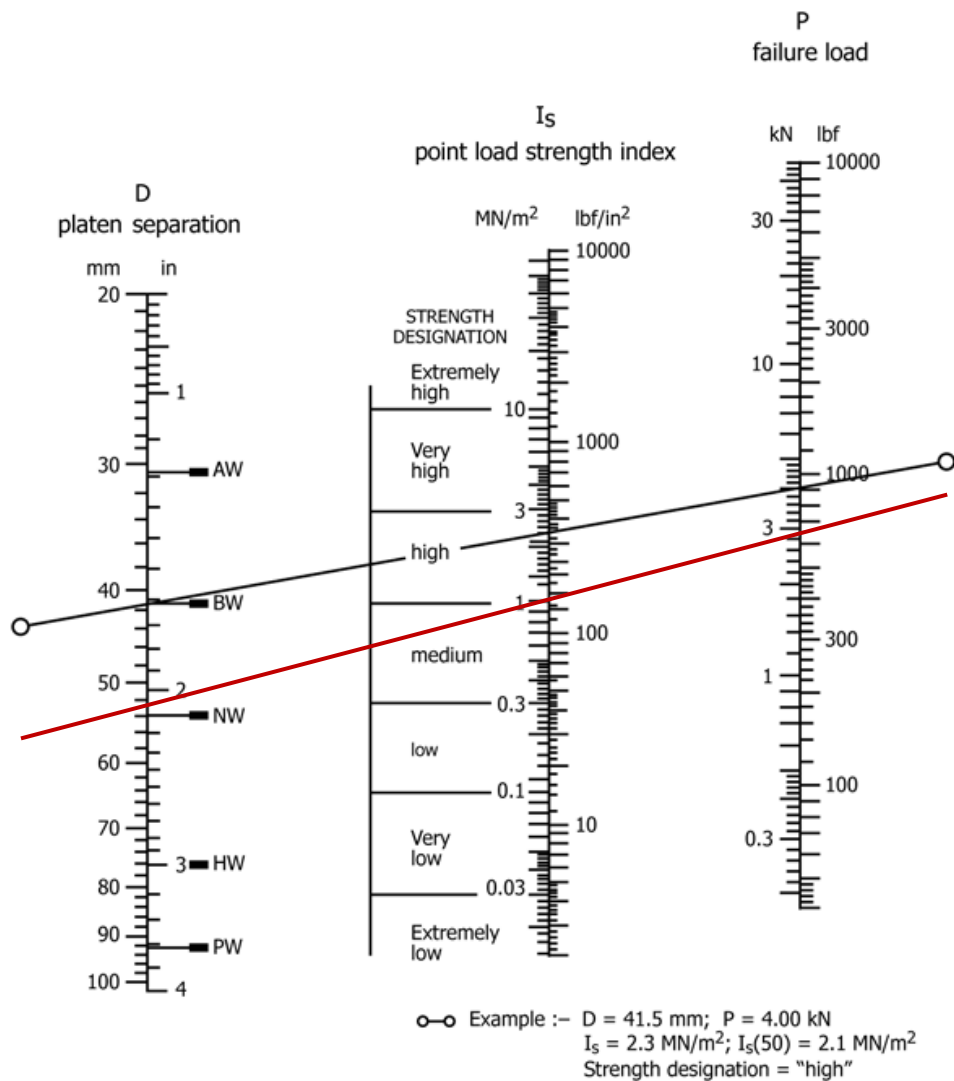
Tgl Percobaan : Jumat, 11 Maret 2022

Sampel 1 (Hari Ke _90) Fas : 0,63

$D_e = 56.43 \text{ mm}$

$P = 2.999 \text{ KN}$

$I_s = 1.000 \text{ Mpa (Medium)}$





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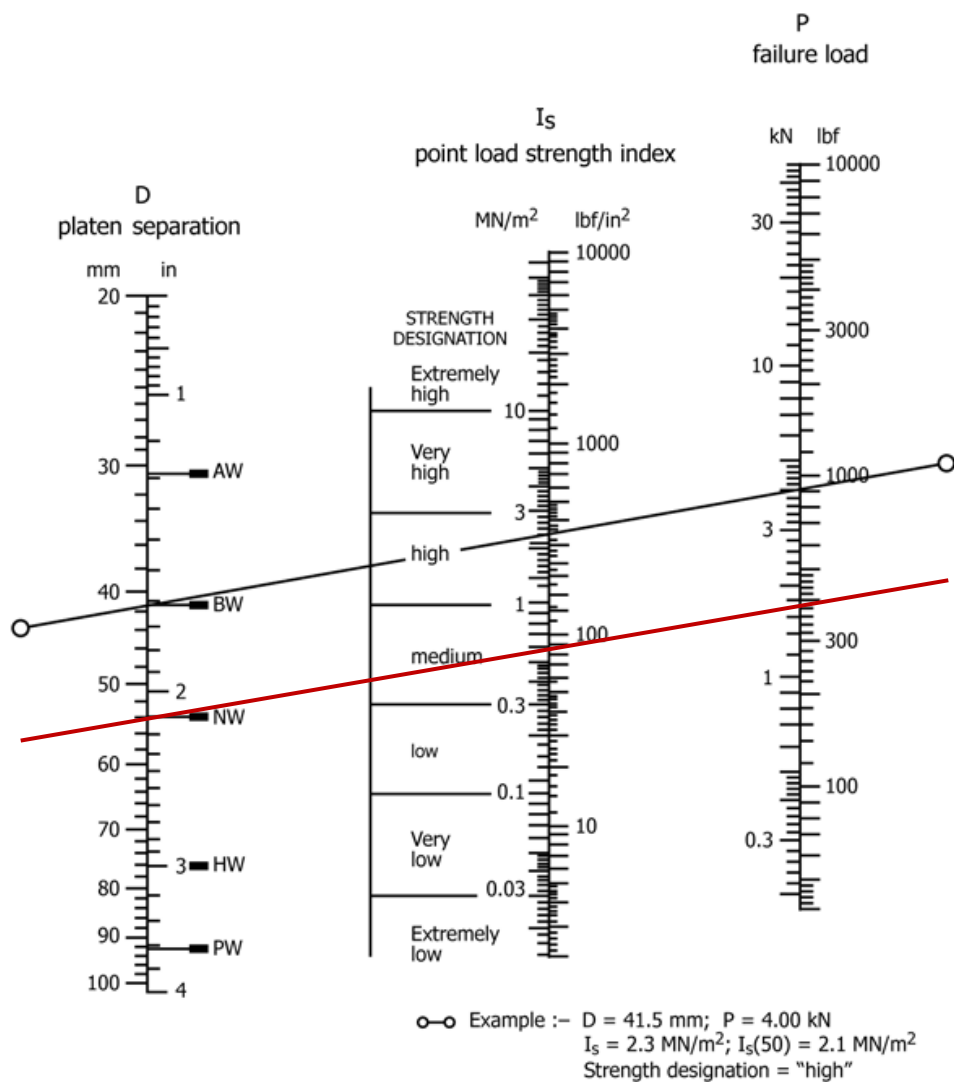
Tgl Percobaan : Jumat, 11 Maret 2022

Sampel 1 (Hari ke_7) Fas 0,53

$D_e = 56.43 \text{ mm}$

$P = 1.666 \text{ KN}$

$I_s = 0.56 \text{ Mpa (Medium)}$





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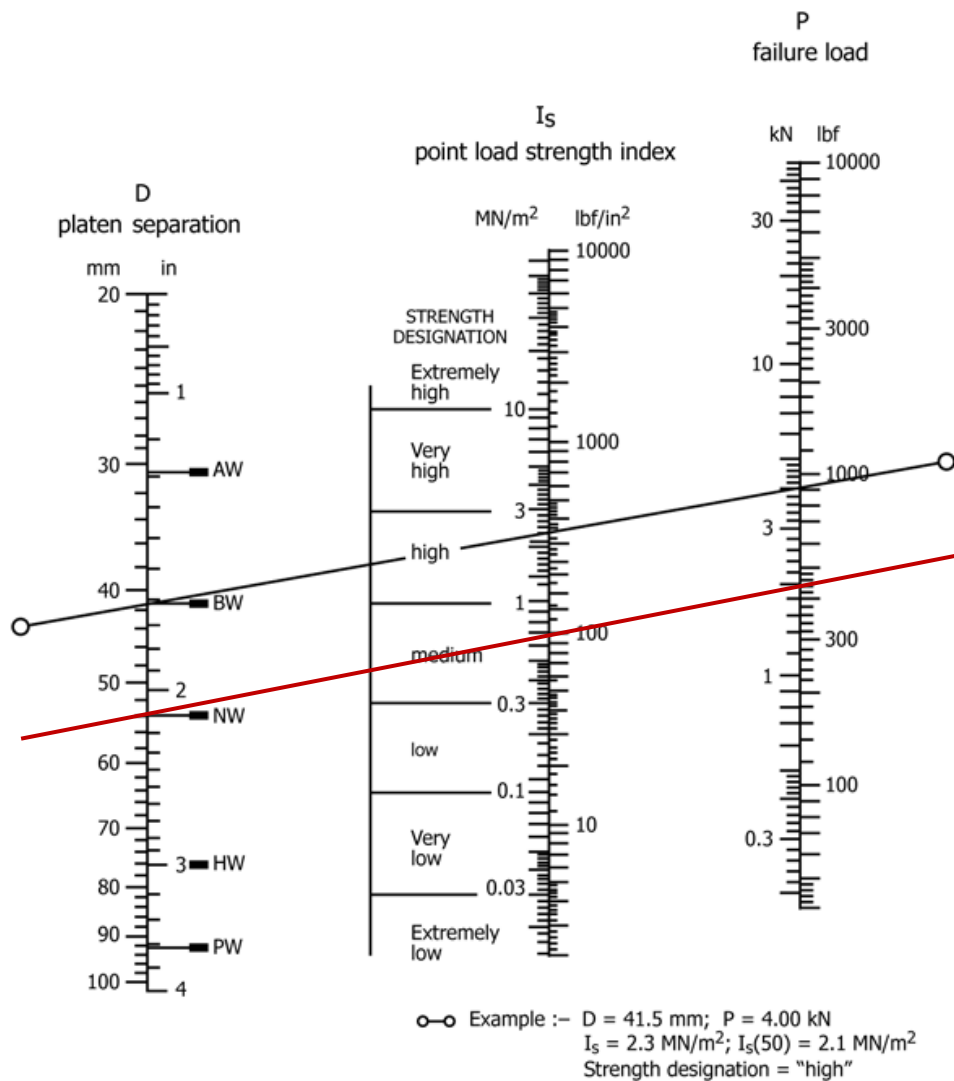
Tgl Percobaan : Jumat, 11 Maret 2022

Sampel 1 (Hari ke_28) Fas 0,53

$D_e = 56.43 \text{ mm}$

$P = 1.999 \text{ KN}$

$I_s = 0.67 \text{ Mpa (Medium)}$





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LAMPIRAN PERHITUNGAN NILAI BEBAN TITIK

Tgl Percobaan : Jumat, 11 Maret 2022

Sampel 1 (Hari ke_90) Fas 0,53

$D_e = 56.43 \text{ mm}$

$P = 3.132 \text{ KN}$

$I_s = 1.04 \text{ Mpa (Medium)}$

