

SPO

VERTIEFUNG

EINFLUSS DER STATIK

schlusskritik | struktur | atelier seifert cattaneo | mirko micelli

$$H = \frac{g \cdot L_1^2}{8 \cdot f_1} = \frac{g \cdot L_2^2}{8 \cdot f_2} = \frac{g \cdot L_3^2}{8 \cdot f_3}$$

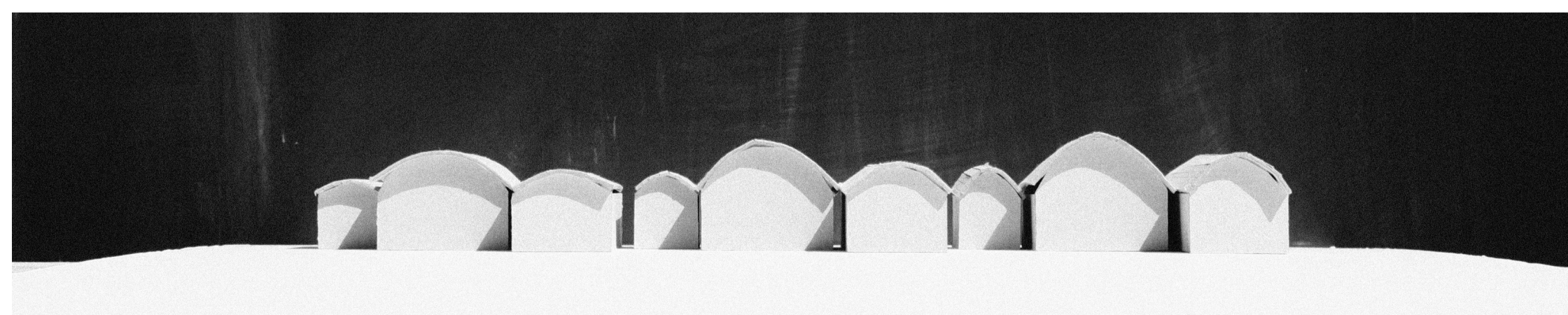
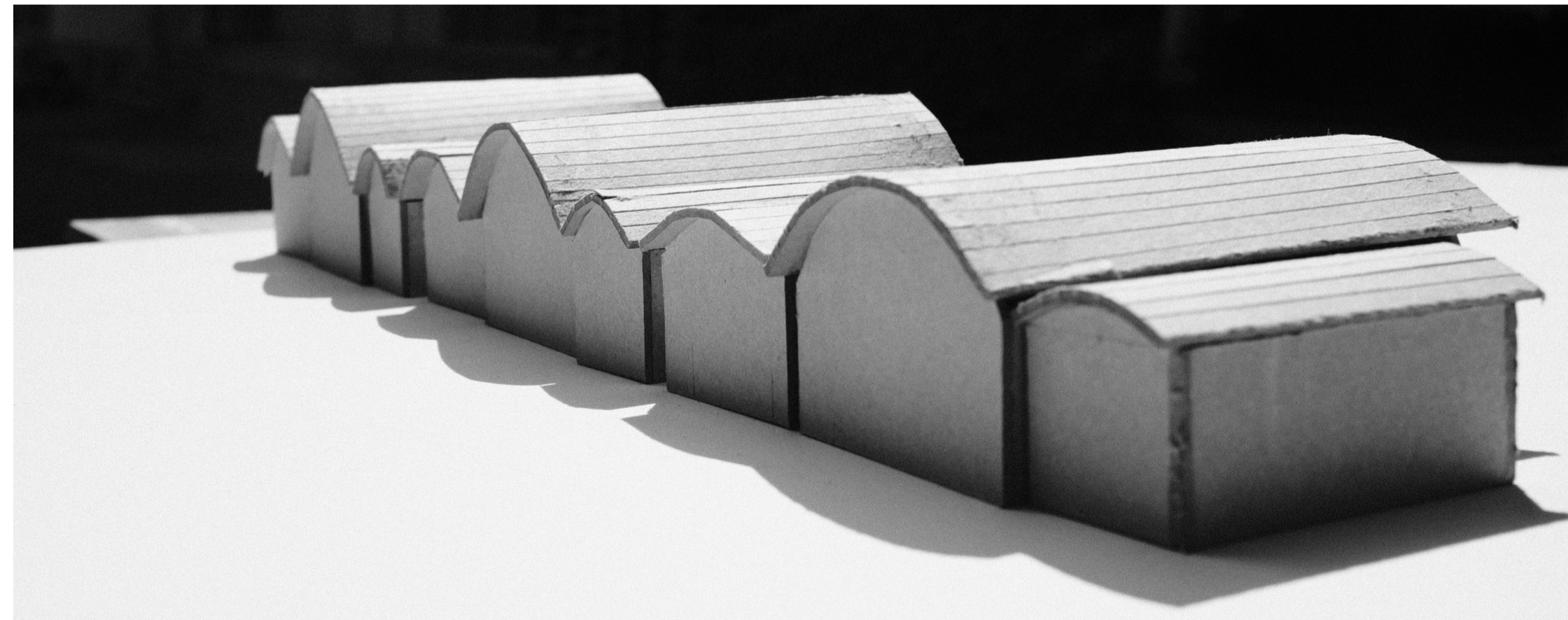
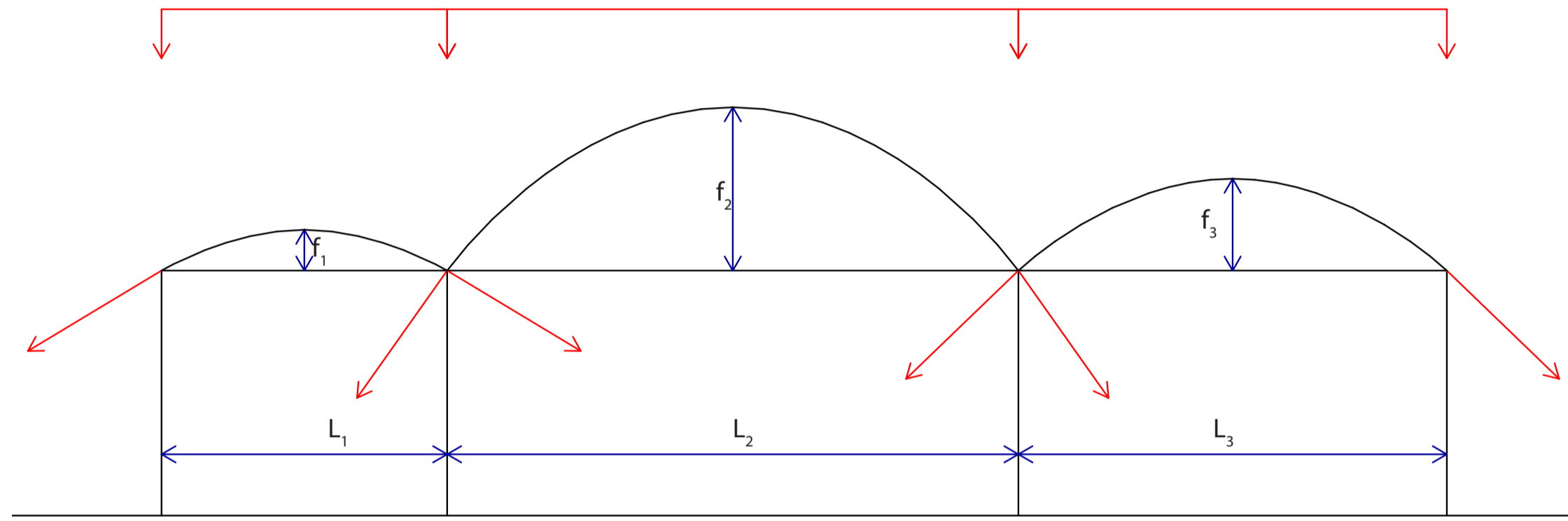
$$\frac{g \cdot L_1^2}{8 \cdot f_1} = \frac{g \cdot L_2^2}{8 \cdot f_2} = \frac{g \cdot L_3^2}{8 \cdot f_3} \rightarrow \frac{L_1^2}{f_1} = \frac{L_2^2}{f_2} = \frac{L_3^2}{f_3}$$

Fixmasse:
L₁ = 3.5m
L₂ = 7m
L₃ = 5.25m

Variablen:
f₁ = 0m < f₁ < f₃
f₂ = f₃ < f₂ < 3m
f₃ = f₁ < f₃ < f₂

g: Ständige Last
L₁: kleine Töne
L₂: grosse Tonne
L₃: mittlere Tonne

f₁: kleinste Stichhöhe
f₂: grösste Stichhöhe
f₃: mittlere Stichhöhe
H: Gewölbeschub



Untersuchung 1
L₁ = 3.5m
L₂ = 7m
L₃ = 5.25m

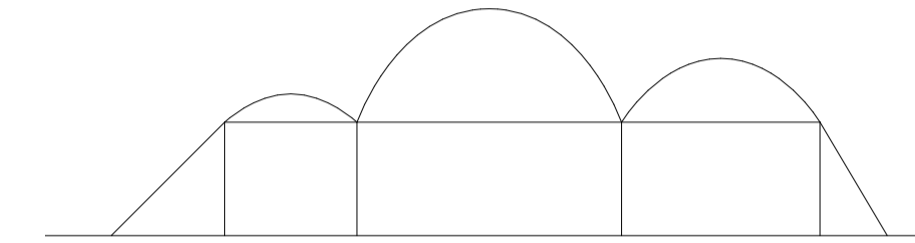
f₁ = 0m < f₁ < f₃
f₂ = 3m
f₃ = f₁ < f₃ < f₂

$$f_1 = \frac{L_1^2 \cdot f_2}{L_2^2} = \frac{3.5m^2 \cdot 3m}{7m^2} = \frac{12.25m^2 \cdot 3m}{49m^2} = 0.75m$$

$$f_3 = \frac{L_3^2 \cdot f_2}{L_2^2} = \frac{5.25m^2 \cdot 3m}{7m^2} = \frac{27.5625m^2 \cdot 3m}{49m^2} = 1.6875m$$

Kontrolle
f₁ = 0m < 0.75m < 1.6875m
f₂ = 1.6875m < 3m < 3m
f₃ = 0.75m < 1.6875m < 3m

Grafik



Untersuchung 3
L₁ = 3.5m
L₂ = 7m
L₃ = 5.25m

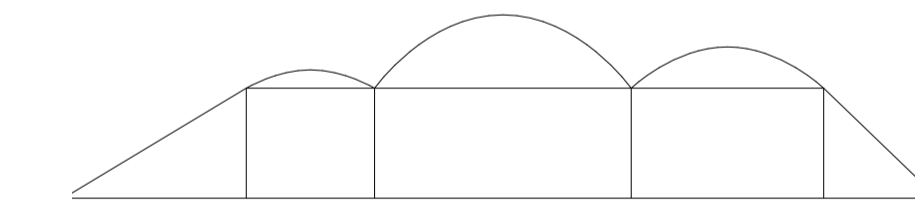
f₁ = 0m < f₁ < f₃
f₂ = 2m
f₃ = f₁ < f₃ < f₂

$$f_1 = \frac{L_1^2 \cdot f_2}{L_2^2} = \frac{3.5m^2 \cdot 2m}{7m^2} = \frac{12.25m^2 \cdot 2m}{49m^2} = 0.5m$$

$$f_3 = \frac{L_3^2 \cdot f_2}{L_2^2} = \frac{5.25m^2 \cdot 2m}{7m^2} = \frac{27.5625m^2 \cdot 2m}{49m^2} = 1.125m$$

Kontrolle
f₁ = 0m < 0.5m < 1.125m
f₂ = 1.125m < 2m < 3m
f₃ = 0.5m < 1.125m < 2m

Grafik



Untersuchung 5
L₁ = 3.5m
L₂ = 7m
L₃ = 5.25m

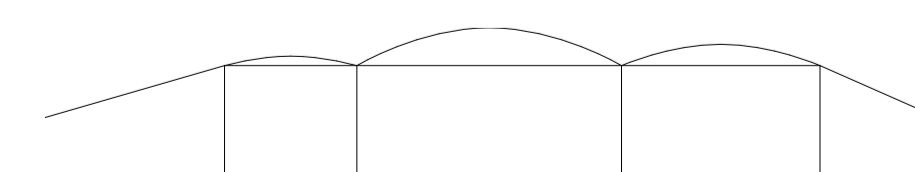
f₁ = 0m < f₁ < f₃
f₂ = 1m
f₃ = f₁ < f₃ < f₂

$$f_1 = \frac{L_1^2 \cdot f_2}{L_2^2} = \frac{3.5m^2 \cdot 1m}{7m^2} = \frac{12.25m^2 \cdot 1m}{49m^2} = 0.25m$$

$$f_3 = \frac{L_3^2 \cdot f_2}{L_2^2} = \frac{5.25m^2 \cdot 1m}{7m^2} = \frac{27.5625m^2 \cdot 1m}{49m^2} = 0.5625m$$

Kontrolle
f₁ = 0m < 0.25m < 0.5625m
f₂ = 0.5625m < 1m < 3m
f₃ = 0.25m < 0.5625m < 1m

Grafik



Untersuchung 2
L₁ = 3.5m
L₂ = 7m
L₃ = 5.25m

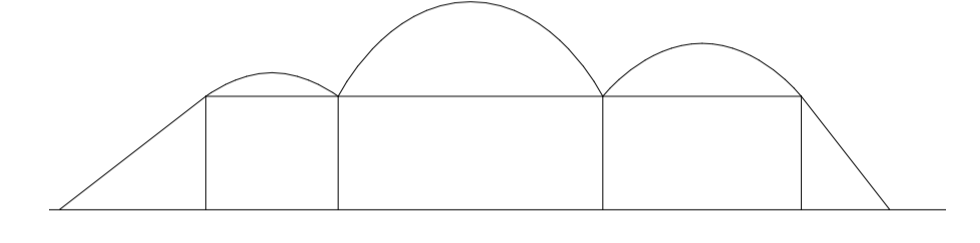
f₁ = 0m < f₁ < f₃
f₂ = 2.5m
f₃ = f₁ < f₃ < f₂

$$f_1 = \frac{L_1^2 \cdot f_2}{L_2^2} = \frac{3.5m^2 \cdot 2.5m}{7m^2} = \frac{12.25m^2 \cdot 2.5m}{49m^2} = 0.625m$$

$$f_3 = \frac{L_3^2 \cdot f_2}{L_2^2} = \frac{5.25m^2 \cdot 2.5m}{7m^2} = \frac{27.5625m^2 \cdot 2.5m}{49m^2} = 1.4m$$

Kontrolle
f₁ = 0m < 0.625m < 1.4m
f₂ = 1.4m < 2.5m < 3m
f₃ = 0.625m < 1.4m < 2.5m

Grafik



Untersuchung 4
L₁ = 3.5m
L₂ = 7m
L₃ = 5.25m

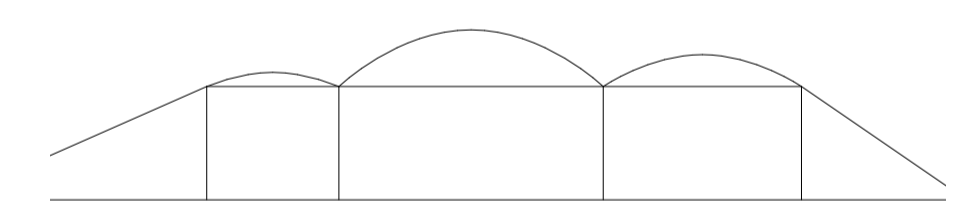
f₁ = 0m < f₁ < f₃
f₂ = 1.5m
f₃ = f₁ < f₃ < f₂

$$f_1 = \frac{L_1^2 \cdot f_2}{L_2^2} = \frac{3.5m^2 \cdot 1.5m}{7m^2} = \frac{12.25m^2 \cdot 1.5m}{49m^2} = 0.375m$$

$$f_3 = \frac{L_3^2 \cdot f_2}{L_2^2} = \frac{5.25m^2 \cdot 1.5m}{7m^2} = \frac{27.5625m^2 \cdot 1.5m}{49m^2} = 0.84375m$$

Kontrolle
f₁ = 0m < 0.375m < 0.84375m
f₂ = 0.84375m < 1.5m < 3m
f₃ = 0.375m < 0.84375m < 1.5m

Grafik



Untersuchung 6
L₁ = 3.5m
L₂ = 7m
L₃ = 5.25m

f₁ = 0m < f₁ < f₃
f₂ = 0.5m
f₃ = f₁ < f₃ < f₂

$$f_1 = \frac{L_1^2 \cdot f_2}{L_2^2} = \frac{3.5m^2 \cdot 0.5m}{7m^2} = \frac{12.25m^2 \cdot 0.5m}{49m^2} = 0.125m$$

$$f_3 = \frac{L_3^2 \cdot f_2}{L_2^2} = \frac{5.25m^2 \cdot 0.5m}{7m^2} = \frac{27.5625m^2 \cdot 0.5m}{49m^2} = 0.28125m$$

Kontrolle
f₁ = 0m < 0.125m < 0.28125m
f₂ = 0.28125m < 0.5m < 3m
f₃ = 0.125m < 0.28125m < 0.5m

Grafik

