

Screen Chamber	Grit Chamber	Skimming Tank	Primary Settling Tank	Aeration Tank	Trickling Filter	Secondary Settling Tank	Digester Unit	Sludge Drying Beds	Hydraulic Design	System
Stp / Screen chamber / New										
Screen chamber										
Input										
<div> <div>Project Title</div> <div>Konvee</div> <div>Use Existing File</div> </div>										
<div> <div>Flow Rate (Q)</div> <div>50</div> <div>MLD</div> <div>Amount of sewage disposal</div> </div>										
<div> <div>Peaking Factor (Pf)</div> <div>1.75</div> <div></div> <div>Ratio of Max.flow to Average flow</div> </div>										
<div> <div>B.O.D.</div> <div>150</div> <div>mg/l</div> <div>Biological O2 demand</div> </div>										
<div> <div>Total Suspended Solids (Ss)</div> <div>200</div> <div>mg/l</div> <div>Dry weight of dissolved solids</div> </div>										
<div> <div>Temperature</div> <div>30</div> <div>De c/s</div> <div></div> </div>										
<div> <div>Inclinations of bars (O)</div> <div>30</div> <div>Degree</div> <div>Manual cleaning 45 to 60 degree Mechanical cleaning 60 to 90 degree</div> </div>										
<div> <div>Size of bars</div> <div>10x50</div> <div>mm</div> <div>Min. bar size 10mm x 50mm</div> </div>										
<div> <div>Width (w)</div> <div>0.01</div> <div>m</div> <div></div> </div>										
<div> <div>Depth (d)</div> <div>0.05</div> <div>m</div> <div></div> </div>										
<div> <div>Clear Spacing between bars (s)</div> <div>0.03</div> <div>m</div> <div>15 mm to 75</div> </div>										
<div> <div>Velocity of flow normal to screen (V)</div> <div>0.3</div> <div>m/sec</div> <div>Min. approach 0.3 m/sec</div> </div>										
<div> <div>Number of bars (n)</div> <div>20</div> <div></div> <div></div> </div>										
<div> <div>Free Board (FB)</div> <div>0.25</div> <div>m</div> <div>Min. 0.3 m</div> </div>										
<div> <div>Manning's Coefficient (N)</div> <div>0.013</div> <div></div> <div></div> </div>										
<div> <div>Calculate</div> <div>Diagram</div> <div>Export DXF</div> <div>Save Record</div> </div>										

Input

Project Title

Konvee

Use Existing File

Specific Gravity of Particles (Ss)

2.65

Min. Specific gravity 2.65

Acceleration due to Gravity (g)

9.81

m²/sec

Diameter of smallest Grit particle (d)

0.002

Min. diameter 0.2 mm

Kinematic Viscosity (Kv)

0.000001

Kinematic viscosity depends on temperature

Depth of the grit chamber (H)

2

Min. 2 to 5 m

w1

0.3

w2

0.6

w3

0.9

w4

1.2

w5

1.5

Width of weir

Calculate

Diagram

Export DXF

Save Record

Input

Project Title

Konvee

Use Existing File

Depth of tank (D)

1.5

m

Normal 1.5 to 2.5 m

Rising velocity of greasy material (Vr)

In most cases 0.25 m/min

0.25

m/min

Calculate

Diagram

Export DXF

Save Record

Input

Design of Primary Settling Tank

Project Title	Konvee	Use Existing File
Surface over flow rate (S.O.R.)	35	m ³ /m ² /day
Wier overflow rate (W.O.R.)	150	m ³ /day
Side water depth (S.W.D.)	3 to 3.7	
Number of tanks (n)	Min. 2	
Bed Slope V	1	
W	12	8 % or more

Design of collection channel

Velocity of flow in channel (V)	0.3 to 0.5 m/sec
Width of channel (W)	1

Design of Sludge Hopper

Percentage of solids removed by Grit Chamber	40	%	30 to 50%
Solids in Clarifier	120	mg/lit	
Percentage of solids removed by Clarifier	60	%	50 to 65%
Total Solids	70	%	
Volatile solid	30	%	
Fixed Solid	1		
Specific gravity - Volatile Solids (Vss)	2.5		
Fixed Solids	3	%	
Percentage of Solids Dried in Clarifier	1000	Kg/m ³	
Sw	0.03		
Ps	12	hours	Normally 12 hours
Frequency of cleaning of sludge hopper	0.5	day	
Frequency of cleaning of sludge hopper	2		
tanθ	0.4	m	
rb2			

Calculate Diagram Export DXF Save Record

Input

Project Title

Percentage recirculation

Aeration period (T)

Depth of tank (d)

Komvee

30

4

1.5

Use Existing File

%

hours

m

For domestic sewage 4 to 8 hours

Usually, 1.5 to 2.5

Calculate

Diagram

Export DXF

Save Record

Desired BOD removal

% Recirculation

150

25

250

30

300

35

400

40

500

48

600

53

Input

Design of Trickling Filter

Use Existing File

Komvee

mg/lit

20

< 20 mg/lit

Recirculation Ratio (R)

1

m

2

m

6

Depth of Trickling Filter (D)

1

m

2

m

6

Number of Units

0.5

m/sec

3

m

0.15

Velocity of flow

0.5

m/sec

3

m

0.15

Provide Sections

0.5 to 0.6 m/sec

0.15 to 0.3 m

3

m

0.15

Provide Joint Length

0.5 to 0.6 m/sec

0.15 to 0.3 m

3

m

0.15

Design of central pipe and distributory system

Normal 3 to 4 sections depending on length of arm

0.5 to 0.6 m/sec

3

m

0.15

Design of Under Drainage System

0.5 to 0.6 m/sec

0.15 to 0.3 m

3

m

0.15

Design of Collecting Channel

0.5 to 0.6 m/sec

0.15 to 0.3 m

3

m

0.15

Design of Orifice

0.5 to 0.6 m/sec

0.15 to 0.3 m

3

m

0.15

Design of Collecting Channel

0.5 to 0.6 m/sec

0.15 to 0.3 m

3

m

0.15

Design of Orifice

0.5 to 0.6 m/sec

0.15 to 0.3 m

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0.15

Design of Collecting Channel

0.5 to 0.6 m/sec

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Design of Orifice

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Design of Collecting Channel

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0.15

Design of Orifice

0.5 to 0.6 m/sec

0.15 to 0.3 m

3

m

0.15

Design of Collecting Channel

0.5 to 0.6 m/sec

0.15 to 0.3 m

3

m

0.15

Design of Orifice

Input

Design of Secondary Clarifier

Project Title

Komvee

Use Existing File

Depth of Clarifier (D)

3.5

m²

Use Existing File

Percentage of solids removed by T.F.

95

Production of solids in T.F.

0.4

Kg/B.O.D.

Percentage of dry solids

70

%

Calculate

Diagram

Export DXF

Save Record

Design of Sludge Hopper

0.3 to 0.5 kg/ BOD

Up to 90
to 95 %

Input

Project Title

Komvee

Use Existing File

Time required for digestion (T)

50

day

Normal 30 to 50 days

Height of Digester (H)

6

m

Up to 10 m

Calculate

Diagram

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Stp / Sludge drying beds / New										
Sludge drying beds										
Input										
Project Title	<div> <div>Komvee</div> <div>Use Existing File</div> </div>									
Depth of Sludge application (D)	<div> <div>0.3</div> <div>m</div> <div>Normal 0.3 to 0.4 m</div> </div>									
Length of drying bed (L)	<div> <div>10</div> <div>m</div> <div>Commonly 10 to 45 m</div> </div>									
Frequency of Sludge remove (f)	<div> <div>10</div> <div>day</div> <div>Time required to form sludge cake 10 to 30 days</div> </div>									
<div> <div>Calculate</div> <div>Diagram</div> <div>Export DXF</div> <div>Save Record</div> </div>										