ESTABLISHMENT OF POLY SHEDS IN COMPOST YARD OF DISTILLERY

IDEAL AGRIBUSINESS SERVICES PVT. LTD.

PIONEER IN
STATE OF ART POLY SHED
FABRICATION AND DESIGNS FOR
DISTILLERIES AND SUGAR MILLS
Ideal Agribusiness Services Pvt. Ltd.

Mr. J. C. Belwal       Chairman & Managing Director
                      MVP Consultants & Associates

Mr. Lilanshu Arora    Director
                      Ideal Agribusiness Services Pvt. Ltd.
Ideal Agribusiness Services Pvt. Ltd. (IABS) pioneer in Polyhouse Constructions & Fabrications is established in the year 2005, at Rudrapur, (Uttarakhand, India). The IABS is first in India to initiate holistic work of Polysched constructions in distilleries.

The design and quality is as per the AIDA guideline, following pollution control norms of Government of India certified as best in the industry.
MoU- Ideal Agri Business Services & MVP Consultants & Associates

Ideal Agri Business Services Pvt. Ltd. has signed an MoU with MVP Consultants & Associates, one of the best structural design Engineering Firm in Uttarakhand to get R & D support for Polyshed. The MVP Consultants & Associates is headed by Shri J. C. Belwal.
Brief Profile of Mr. J. C. Belwal

Mr. J. C. Belwal is Alumni of Pantnagar University (1971) having 45 years of working experience in India and abroad. He is life member of “Institutions of Engineers India”, Indian Association of Structural Engineers”, “Institutions of Valuers”, “Indian Road Congress”, Indian Concrete Institute” and “Indian Building Congress”.

Authorized Structural Engineer

Registration No. DoH-UK/ G-1/ ASE- 13 /2015

Certified that Sri J.C. Belwal, 203, Tara Place, Nainital Road, Haldwani is hereby empanelled with the Department of Housing, Government of Uttarakhand, as Authorized Structural Engineer (ASE) Grade-I.

The empanelment will remain valid till May, 2018 and will be renewed every three years thereafter.

The ASE is authorized to prepare detailed structural design and drawings for buildings and projects submitted for approval, their supervision and issuance of certificate regarding the structural safety of buildings as per the scope of work as defined in Grade-I and as per prevailing norms and bye-laws.

All relevant drawings and documents submitted for approval, shall be duly signed by the ASE along with seal bearing the Registration No.

The empanelment will be cancelled permanently or for a specified period of time, if at any time, it is found that the ASE has shown unprofessional conduct or has engaged in fraudulent practices.

Date: 21st May, 2015
Dehradun

[Signature]
Senior Planner
Town & Country Planning Department
Department of Housing,
Govt. of Uttarakhand, Dehradun
Brief Profile of Mr. Lilanshu Arora

Mr. Lilanshu Arora is B.Tech Agricultural Engineering from Pantnagar University (1998) working in Agri-business promotion from last 15 years. He established Ideal Agri Business Services Pvt. Ltd. in 2005. He visited China, Holland, Israel, Russia, Hong Kong, Maccau and Finland for Agri-business training and exposure.
MOEF and CPCB’s, CREP Program for Zero Spent wash Discharge (ZSD)

The Ministry of Environment and Forests (MOEF) and Central Pollution Control Board (CPCB) under CREP programme made it compulsory to cover their composting units to achieve Zero Spentwash Discharge (ZSD) particularly to support the Government of India's programme of Clean Ganga Mission and the “Swachh Bharat Abhiyan”
Charter on Corporate Responsibility for Environmental Protection (CREP)

The Ministry of Environment & Forest (MoEF) has launched the Charter on "Corporate Responsibility for Environmental Protection (CREP)" in March 2003 with the purpose to go beyond the compliance of regulatory norms for prevention & control of pollution through various measures including waste minimization, in-plant process control & adoption of clean technologies. The Charter has set targets concerning conservation of water, energy, recovery of chemicals, reduction in pollution, elimination of toxic pollutants, process & management of residues that are required to be disposed off in an environmentally sound manner. The Charter enlists the action points for pollution control for various categories of highly polluting industries. The Task Force was constituted for monitoring the progress of implementation of CREP recommendations/ action points.
To

The Member Secretary
All State PCBs/PCCs/Zonal officers

Sub: Guidelines on Techno-Economic Feasibility of implementation of Zero Liquid Discharge (ZLD) for Water Polluting Industries. reg.

Sir,

Implementation of Zero Liquid Discharge (ZLD) in all types of industrial sectors is an important issue and in many sectors, technology wise it is possible and can be achieved. In many cases, Hon’ble Courts/ Tribunal are also seeking opinion from regulators about the feasibility and possibilities of its total implementation. Technically in many parts of the country and in many sectors it is being practiced/demonstrated successfully, though the economic aspects are in question.

In view of this Central Pollution Control Board is in the process of preparing ‘Guidelines on Techno-Economic Feasibility of implementation of Zero Liquid Discharge (ZLD) for Water Polluting Industries’. It is requested that the draft may be reviewed and the consolidated suggestions/modifications may be forwarded to this office by 27-01-2015 to email adaba.cpcb@nic.in

Yours faithfully,

[Signature]

(A.B. Akolkar)
Member Secretary

Encl: as above
Bio-Composting

The waste material of sugar mill pressmud is processed for rapid composting by using distillery spentwash is converted into organic manure, a value added produce, which is used to replenish soil nutrients. Replenishment of soil nutrients is essential since plants utilize them to generate a large amount of crop produce, year after year.
Physico-chemical characteristics and the nutritive value of compost generated out of pressmud and distillery effluent have been found to support good plant growth. The product has gained wide utility as an ameliorating agent and as a soil conditioner to replenish soil nutrients for sustainable agriculture.
• Besides, composting is a suitable method for stabilization of organic wastes which avoids discharge of industrial wastes to land and water ecosystems that may cause pollution. Activated composting through microbial culture and appropriate conditions converts the organic matter of pressmud and spentwash into value added compost.

• The cumbersome bio-nondegradable portion of these wastes such as lignins, melanoidins and humic acid get converted to humus which is an essential component of soil and further enriches the soil for sustainable crop productivity.
MAKING OF WINDROW WITH PRESS-MUD
TURNING OF WINDROW WITH COMPOST TURNER MACHINE POWERED BY TRACTOR
SPRAYING SPENT-WASH OVER PRESS-MUD WINDROW
Polyshed

The polyshed is the structure of GI pipes with polysheet covering to be placed in the distilleries to cover their composting yard, where they convert sugarcane press mud into compost by using their spent wash.
IABS POLYSHEED

**Application**
- For Bio – composting in distilleries
- For storage

**Specification**

**Structure** - Galvanized Steel Tubular with B class pipe

**Cladding Material** - UV Stabilized Reinforced, Transparent Plastic Film

**Fixing Of Cladding** - GI Profile & Zigzag spring

**Gutter** - UV Stabilized Gutter Sheet over pipe frame

**Rain water** - Through a under ground structure to recharge the sub soil water table
IABS Pvt. Ltd. use advanced technology and latest machines & equipment to manufacture these products in accordance with the quality standards. Also, the offered products are extremely valued by the esteemed clients for their smooth functioning, reliable performance, compact design, user-friendly interface, durability, low maintenance and longer service life.
Initially IABS started with this design and successfully established in M/S Radico Khaitan Limited, Rampur, Radico N V Aurangabad and M/S DCM-Sri-Ram Distilleries at Daurala, in Uttar Pradesh.
DESIGN OF POLYSHED

FRONT VIEW OF STRUCTURE

BIG ARC

SMALL ARC

TRUSSES

BOTTOM

COLUMN

HOCKEY
FRONT VIEW OF STRUCTURE AS A GRID
POLY SHED PARTS

- **Column**: These are the base on which the whole structure lies and therefore this part is kept strongest as comparison to others.

- **Bottom**: It is second strongest part of structure. It bears all the load of truss members and ridge member.

- **Truss Members**: These members are used to give support to Arcs and for load distribution

- **Arcs**: These are used for making slope for water during raining to the gutter.
• **Perlins**: Perlins are used to join the bays to each other and also for fitting the sheet on the upper part of structure.

• **Hockey**: Hockeys are used for giving vertical support to the structure from both sides. Due to hockey the life of structure is increased and it can withstand for many of the years.
PART EXPLANATION IN STRUCTURE

• **Gutters**: Gutters are used for drainage of roof water. Gutters are made with UV stabilized LDPE sheet.

• **Polysheet**: It is a PVC Reinforced sheet used mainly to cover the top and one and half meter each in two Hockey sides.
## Technical specifications of Polyshed; Design-1

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Items</th>
<th>Description/Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Product</td>
<td>Poly Shed</td>
</tr>
<tr>
<td>2</td>
<td>Bay Size</td>
<td>4m and 12m wide.</td>
</tr>
<tr>
<td>3</td>
<td>Ridge height</td>
<td>8.5 m</td>
</tr>
<tr>
<td>4</td>
<td>Vents</td>
<td>80-90 cm height along the length of gutter</td>
</tr>
<tr>
<td>5</td>
<td>Gutter height</td>
<td>6.0 m from floor area.</td>
</tr>
<tr>
<td>6</td>
<td>Gutter Slope</td>
<td>1% slope</td>
</tr>
<tr>
<td>7</td>
<td>Gutter Material</td>
<td>1.3 mm thick LDPE, UV stabilized gutter sheet jointing with GI gutter.</td>
</tr>
<tr>
<td>8</td>
<td>Structure</td>
<td>Complete structure made of galvanized steel tubular pipes or equivalent section conforming Indian Standards ‘B’ class.</td>
</tr>
<tr>
<td>i</td>
<td>Columns</td>
<td>90 mm OD, 3.6mm thick, ‘B’ class, and hot dip galvanized.</td>
</tr>
<tr>
<td>ii</td>
<td>Bottom</td>
<td>Bottom 76mm OD, 3. 2mm thick, ‘B’ class</td>
</tr>
<tr>
<td>iii</td>
<td>Hockey</td>
<td>60 mm OD, ‘B’ class</td>
</tr>
<tr>
<td>iv</td>
<td>Trusses member &amp; Purlin</td>
<td>42 mm OD, ‘B’ class</td>
</tr>
<tr>
<td>v</td>
<td>Purlin member &amp; others</td>
<td>42 mm, ‘B’ class</td>
</tr>
<tr>
<td>vi</td>
<td>Tie Bar, Cross</td>
<td>42 mm, ‘B’ class</td>
</tr>
<tr>
<td>9</td>
<td>Foundations</td>
<td>Insert GI pipes of minimum 76mm OD, 3.2mm, ‘B’ class and 1.5 m long.</td>
</tr>
<tr>
<td>10</td>
<td>Fasteners</td>
<td>All nuts &amp; bolts will be high tensile strength and galvanized.</td>
</tr>
<tr>
<td>11</td>
<td>F Bracket</td>
<td>5 mm thick, MS bracket with galvanization for holding bottom with column.</td>
</tr>
<tr>
<td>12</td>
<td>L Bracket</td>
<td>Galvanized L shaped 5 mm thick brackets for holding vertical column on bottoms.</td>
</tr>
<tr>
<td>13</td>
<td>Cladding Material</td>
<td>UV Stabilized 200 GSM transparent Plastics films conforming Indian Standards, rain forced technology, diffused, clear and having minimum 85% level of light transmittance.</td>
</tr>
<tr>
<td>14</td>
<td>Fixing of cladding Materials</td>
<td>GI Profiles with suitable locking arrangement</td>
</tr>
<tr>
<td>15</td>
<td>Spring Insert</td>
<td>Zigzag high carbon steel with spring action wire of 2-3 mm diameter inserted to fix Poly film into GI profile.</td>
</tr>
<tr>
<td>16</td>
<td>Arcs</td>
<td>48mm OD, B Class</td>
</tr>
</tbody>
</table>
With the constant research and development IABS has developed another design which is most economical, sustainable and improved slope for quick water discharge and with increased head room.
ELEVATION DETAIL

SECTIONAL ELEVATION

ELEVATION OF DETAIL AT -2

<table>
<thead>
<tr>
<th>PROJECT</th>
<th>TITLE</th>
<th>CHECKED BY</th>
<th>PREPARED BY</th>
</tr>
</thead>
</table>
| SH. LILANSHU ARORA  
PARTNER 
IABS, RUDRAPUR, UDHAM 
SINGH  
NAGAR, UTTARAKHAND | BIOCOMPOSED POLISHED | NOTE | M.V.P. CONSULTANT & ASSOCIATES 
203 TARA PLACE 
NAINITAL ROAD 
HALDWANI (NAINITAL) |
| ALL DIMENSIONS ARE IN MM | | | |
FOUNDATION & JOINT DETAILS

GUSSET PLATE
(Size 100x40x5)

SECTIONAL DETAIL OF CORRIDOR

CLASS A BRICK ON EDGE

SAND

RAMMED EARTH

PROJECT
SH. LILANSHU ARORA
PARTNER
IABS, RUDRAPUR, UDHAM SINGH NAGAR, UTTARAKHAND

TITLE
BIOCOMPOSITES POLISHED

CHECKED BY
NOTE

ALL DIMENSIONS ARE IN MM

PREPARED BY
M.V.P. CONSULTANT & ASSOCIATES
233 TARA PLACE NAINTAL ROAD HALDWAN (NAINTAL)
3-D VIEW of One Portal

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Description</th>
<th>Dia</th>
<th>Length</th>
<th>Thickness</th>
</tr>
</thead>
<tbody>
<tr>
<td>(A)</td>
<td>Column</td>
<td>4&quot;</td>
<td>3 m</td>
<td>4.4 mm</td>
</tr>
<tr>
<td>(B1)</td>
<td>Small Arc</td>
<td>2&quot;</td>
<td>7 m</td>
<td>3 mm</td>
</tr>
<tr>
<td>(B2)</td>
<td>Big arc</td>
<td>2&quot;</td>
<td>8.5 m</td>
<td>3 mm</td>
</tr>
<tr>
<td>(C)</td>
<td>Hockey</td>
<td>2&quot;</td>
<td>4.5 m</td>
<td>3 mm</td>
</tr>
<tr>
<td>(D)</td>
<td>Bottom</td>
<td>1.25&quot;</td>
<td>4 m</td>
<td>2.8 mm</td>
</tr>
<tr>
<td>(E)</td>
<td>Top Perlin</td>
<td>1.25&quot;</td>
<td>6 m</td>
<td>2.8 mm</td>
</tr>
<tr>
<td>(F)</td>
<td>Second Perlin</td>
<td>1.25&quot;</td>
<td>6 m</td>
<td>2.8 mm</td>
</tr>
<tr>
<td>(G)</td>
<td>Vent Member</td>
<td>1.25&quot;</td>
<td>1.5 m</td>
<td>2.8 mm</td>
</tr>
<tr>
<td>(H)</td>
<td>Hockey Member</td>
<td>2&quot;</td>
<td>1.5 m</td>
<td>2.8 mm</td>
</tr>
<tr>
<td>(I)</td>
<td>Hockey Runner</td>
<td>1.25&quot;</td>
<td>3 m</td>
<td>2.8 mm</td>
</tr>
<tr>
<td>(J)</td>
<td>End Perlin</td>
<td>1.25&quot;</td>
<td>3 m</td>
<td>2.8 mm</td>
</tr>
<tr>
<td>(K1,K2,K3,K4)</td>
<td>Tie bars</td>
<td>0.75&quot;</td>
<td>3 m</td>
<td>1.8 mm</td>
</tr>
</tbody>
</table>

Foundations
### DETAILS OF MATERIAL FOR NEW DESIGN

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Description</th>
<th>Dia (in mm)</th>
<th>Dia (In Inches)</th>
<th>Thickness</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Columns in foundation</td>
<td>105</td>
<td>3.5</td>
<td>3.6</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>Column</td>
<td>114</td>
<td>4</td>
<td>4.4</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>Bottom rafter</td>
<td>42</td>
<td>1.25</td>
<td>2.8</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>Arc</td>
<td>60</td>
<td>2</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>5</td>
<td>Arc Member</td>
<td>60</td>
<td>2</td>
<td>3</td>
<td>1.3</td>
</tr>
<tr>
<td>6</td>
<td>Top Perlin</td>
<td>42</td>
<td>1.25</td>
<td>2.8</td>
<td>6</td>
</tr>
<tr>
<td>7</td>
<td>Second Perlin</td>
<td>42</td>
<td>1.25</td>
<td>2.8</td>
<td>6</td>
</tr>
<tr>
<td>8</td>
<td>Gutter Perlins</td>
<td>42</td>
<td>1.25</td>
<td>2.8</td>
<td>3</td>
</tr>
<tr>
<td>9</td>
<td>Tie Bar</td>
<td>33</td>
<td>1</td>
<td>2.8</td>
<td>3</td>
</tr>
<tr>
<td>10</td>
<td>Vent Member</td>
<td>42</td>
<td>1.25</td>
<td>2.8</td>
<td>1.5</td>
</tr>
<tr>
<td>11</td>
<td>Hockey</td>
<td>60</td>
<td>2</td>
<td>3</td>
<td>4.5</td>
</tr>
<tr>
<td>12</td>
<td>Hockey Member</td>
<td>60</td>
<td>2</td>
<td>3</td>
<td>1.1</td>
</tr>
<tr>
<td>13</td>
<td>Hockey Runner</td>
<td>42</td>
<td>1.25</td>
<td>2.8</td>
<td>3</td>
</tr>
<tr>
<td>14</td>
<td>End Perlin</td>
<td>42</td>
<td>1.25</td>
<td>2.8</td>
<td>3</td>
</tr>
<tr>
<td>15</td>
<td>Cross Bracing (B To B)</td>
<td>33</td>
<td>1</td>
<td>2.8</td>
<td>3.5</td>
</tr>
</tbody>
</table>
WIND VELOCITY CHART

Step 1 – Highest Windspeed

INDIA

Zone | Windspeed (m/s)
--- | ---
55  | Pabal – 39 m/s
ROOF DRAINAGE

Water has to discharge within minimum of time to avoid possible loading of the structure

To avoid pooling and stagnation of rain water on the sheets

In absence of efficient drainage the structure is subjected to loads which is not desirable
The foundation are design for dead loads and part of wind loads ( permeability more than 40% ) which may cause uprooting due to suction.
Function of Foundation

• Distribution of loads
• Stability against sliding and overturning and uprooting
• Safe against undermining due to water
• Minimize distress against soil movement
• To sustain & absorb possible vibrations and dynamic loading because of operating machines.
Foundation Dimension

- Depth-1000mm from ground level
- Dia-400mm
- Volume 12.56 Cu Meter
- Concrete by Weight M 20 Grade
  \[1: 1.5: 3 = \text{Cement: Sand: Aggregate}\]
- Cross 12 mm dia Steel Bar each 30 cm long at the bottom of pipe
The first Polyshed for composting in India was constructed in the Year 2014 at Radico Khaitan Limited Distillery at Rampur, Uttar Pradesh. The vision behind the Polyshed was of Shri K. P. Singh, Director Operations and his vast experience to make the distillery completely environment friendly.
CONSTRUCTION OF POLYSHED ESTABLISHMENT

- Marking of land
- Excavation of Earth for foundation
- C.C. foundation
- Structure Lay out on ground
- Fixing of structure on ground
- Erection of Structure
- Joining of perlins
- Fixing of Gutters
- Fixing of sheet
FOUNDATION
GROUND ASSEMBLY
ERECTIONS OF THE FRAMES BY HYDRA
ERECTIONS OF THE FRAMES BY HYDRA-CONT....
ERECTIONS OF THE FRAMES BY HYDRA-CONT....
ERECTIONS OF THE FRAMES BY HYDRA-CONT....
ERECTED STRUCTURE
ERECTED STRUCTURE CONT....
CLADDING WITH REINFORCED PVC SHEETS
BIO-COMPOSTING ON WINDROWS
BIO-COMPOSTING ON WINDROWS CONT....
ROOF DRAINAGE
THANKS

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