



7.1.3: The Institution has facilities for alternate sources of energy and energy conservation devices

- 1. Solar energy**
- 2. Wheeling to the Grid**
- 3. Sensor based energy conservation**
- 4. Biogas plant**
- 5. Use of LED bulbs/ power efficient equipment**

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7.1.3: The Institution has facilities for alternate sources of energy and energy conservation devices

- 1. Solar energy**
- 2. Wheeling to the Grid**
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- 4. Biogas plant**
- 5. Use of LED bulbs/ power efficient equipment**

CERTIFICATE OF THE HEAD OF INSTITUTION



MAHE INSTITUTE OF DENTAL SCIENCES & HOSPITAL
Affiliated to Pondicherry Central University, Recognized by Dental Council of India
Chalakkara, P.O. Pallor, Mahe-673 310
U.T. of Puducherry. Ph : 0490 2337765

Dr. ANIL MELATH, MDS.,
PRINCIPAL

TO WHOMSOEVER IT MAY CONCERN

This is to certify that, our Institution has facilities for alternate sources of energy and energy conservation devices

1. Solar energy
2. Wheeling to the Grid
3. Sensor based energy conservation
4. Biogas plant
5. Use of LED bulbs/ power efficient equipment

details are given:



PRINCIPAL

Dr. Anil Melath, MDS
Principal

Mahe Institute of Dental Sciences & Hos
Chalakkara, P.O. Pallor, Mahe -673310
UT of Puducherry



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RELEVANT DOCUMENTS



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SOLAR ENERGY



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Solar panel installed in our campus convert the solar energy to the electrical energy. This energy helps to create electrical charges that move in response to an internal electric field in the cell causing electricity to flow.




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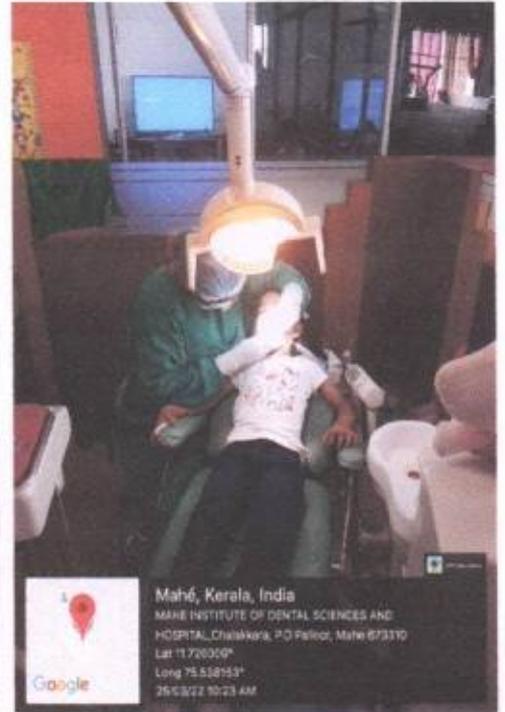
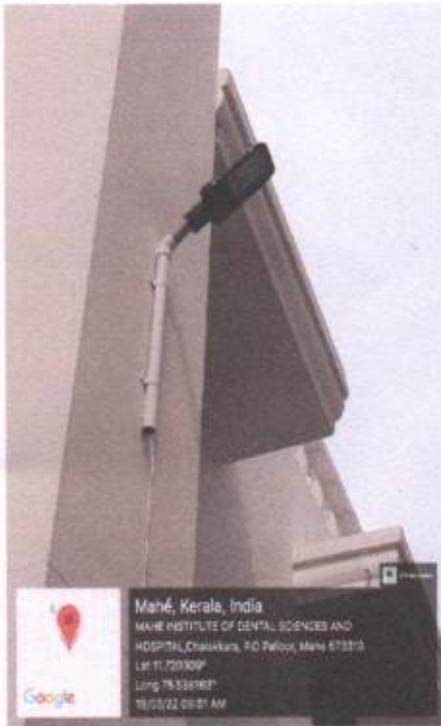


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SENSOR BASED ENERGY CONSERVATION



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Sensor based street lights are used in the campus and also in dental chairs. Sensor lights converts light energy to electrical signal output. They can detect the amount of light in a room and raise , lower the blinds or switch on/off the lights automatically to improve the comfort level of the user



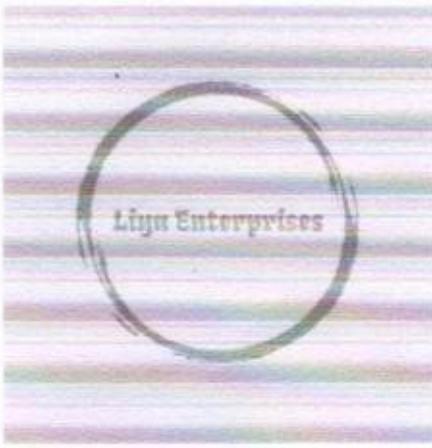

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BILLS AND DOCUMENTS FOR SENSOR BASED LIGHTS

INVOICE



LIYA ENTERPRISES

NEAR KUNOTHUPARAMBA GRAMA PANCHAYATH

PUTHUR, PANOOR, KERALA 670692

9447006535

Date 11/21/2019

Invoice # 2147483647

Due Date Upon Receipt

To

MAHE DENTAL COLLEGE

CHALAKKARA

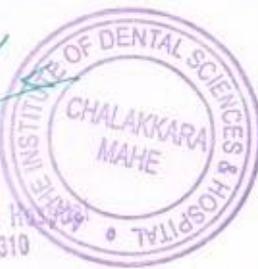
PALLOOR, MAHE

| Item | Quantity | Unit Price | Total |
|-------------------------------|----------|---------------|-----------|
| RAXON SENSOR OUTDOOR | 10 | 950.00 | 9,500.00 |
| 50WATT LED STREET LIGHT | | | |
| HALONIX NEO RADAR BULB | 10 | 85.00 | 850.00 |
| MOTION SENSOR LED 10WATT BULB | | | |
| | | Sub Total | 10,350.00 |
| | | Sales Tax 12% | 1,242.00 |
| | | Total (INR) | 11,592.00 |

Other Comments or Special Instructions

GST :32A0BPM8297E1ZV BANK DETAILS UNION BANK OF INDIA ACCOUNT NO :338201010034217 IFSC : UBIN0533823


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Principal
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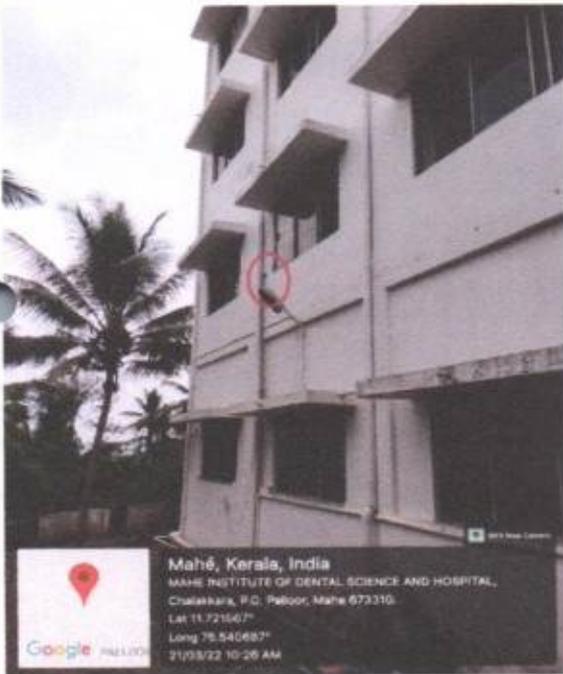
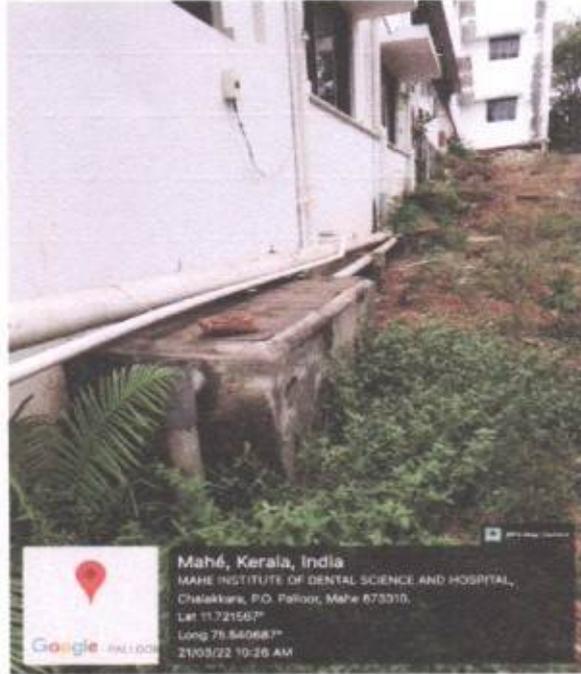
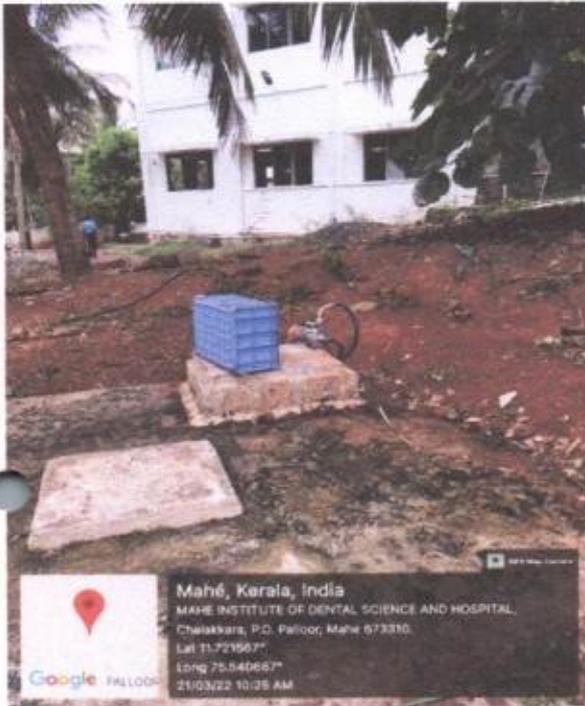


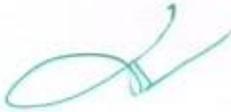
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BIOGAS PLANT



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- Environmental friendly recirculation of organic waste. It provides oxygen free environment for bacteria and transform biomass in to biogas. This biogas is also used for various purpose in the campus .




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BILLS AND DOCUMENTS FOR BIOGAS PLANT

AJESH RENEWABLE ENERGY SOLUTIONS

(Approved by Suchitwa mission & ANERT Govt of Kerala)

Office, TC 31/1087/1

PH: 0471-2461436

PKLRA 50 ,PETTAH P O

9447231883

TRIVANDRUM 695024

No 47/BG/MDC/20

Dated 27-10-2020

To,

K P Ramesh Kumar Sir,
The Chairman MINDS,
Chlakara, Pallor
Mahe Dental College
MAHE.

(Revised proposal as per telephone message dated 25-10-2020)

Dear Sir,

**Sub: Revised proposal for Construction of Bio gas plant 100 kg/day+
300 ltrs of food processed effluent Proposal- submitting- reg**

**Ref:- Field visit dated 28-02-2020 and Telephone discussion
on 10-03-2020 and 25-10-2020**

As discussed with the chair and managing Director of Mahe Dental college over telephone regarding waste management, the earlier proposal has been revised to 100 kg per day capacity treatment bio gas plant. Based on the discussion, we are submitting a detailed technical specifications, design, drawing and estimate for installation of bio gas plant for scientifically treating 100 kgs of bio degradable waste and 300 ltrs of food processed effluent per day generated from the college canteen.

Thanking you

yours faithfully,
J. M. Jayamohan




Dr. Anil Melath,
Principal
Mahe Institute of Dental Sciences & Hospital
Chalakara, Pallor, Mahe-673310
UT of Puducherry

TYPE OF BIO GAS PLANT PROPOSED

Fixed dome digester biogas plant is proposed. This digester functions on a continuous batch bases. It can digest plant waste as well as human and animal waste. It is usually built below ground level. The digester can be built from several materials.eg. Bricks, cement, RCC, lime concrete and Ferro cement. This facilitates in introduction and use of local materials and manpower. Pressure inside the digester does not cause any problem in the use of gas.

BASIC COMPONENTS OF THE PLANT/ INFRASTRUCTURE

- Waste collection and segregation, processing area
- Inlet to the main bioreactor
- Main digester Tank 18 m³
- Outlet tank (balancing tank 6 m³)
- Slurry collection tank- 3 m³
- Gas collection chamber (Fixed dome)
- Gas distribution system
- Sludge collection tank 3 m³
- Moisture removal systems
- Manhole to the digester
- Initial feeding with cow dung
- Electricity connection (may be provided by college)
- Water connection (may be provided by college)

TRUCTURAL SPECIFICATIONS: FIXED DOME

(As per GO(MS) No 73/LSGD/ dated 01-03-2011)

| Sl no | Items | 100 kg/day + 300 ltrs of food processed effluent |
|-------|--|--|
| 1 | Foundation | PCC, 1:4:8 at 20 cm thick, RCC 1:1.5:3, 10 & 8 mm steel @ 20/20 cc 12 cm thick |
| 2 | Vertical Wall | Inner outer Cc block/ brick work 10 cm thick, RCC 1:1.5:3, 10 & 8 mm steel @ 20/20 cc 12 cm thick |
| 3 | Bottom portion of out let tank, pre filter and septic tank | PCC 15 cm, RCC 1:1.5:3, 10 & 8 mm steel @ 20/20 cc |
| 4 | Dome portion | One layer Brick work 10 cm 12 cm RCC 1:1.5:3, 10 & 8 |



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Dt of Prodcery

| | | |
|---|-----------------------|---|
| | | mm steel @ 20/20 cc |
| 5 | Plastering | Cement mortar at 1:4 at 10 cm thick all surface |
| 6 | Painting | Dome- two coat black paint inner side |
| 7 | Reinforcement details | Dome bottom and top 10 & 8mm dia at 15 c/c Vertical wall 10 & 8 mm at 15 c/c and 8mm at 20 c/c |

Technical Specification of bio gas plant

MAIN DIGESTER

| | | |
|-----------------------------|-------|--|
| Model- | model | Fixed dome |
| Inlet tank (2Nos) | | 160 mm pvc pipe 3 meter |
| Volume of the digester | | 18 m ³ (Including gas portion) |
| Treatment capacity per day- | | 100 Kg per day+ 300 ltrs effluent |
| HRT | | 40days |
| Bio gas production per day | | 10 m ³ |
| Inner dia of reactor | | 3.00 m |
| Outer dia of the reactor | | 3.80 m |
| Depth | | 2.75 m |
| Vertical wall | | Inner and outer Brick work+ 12 cm RCC |
| Dome fabrication- | | Brickwork +12 cm RCC |
| Bottom bowl | | 20 Cm PCC + 12 cm RCC |
| Plastering of plants- | | inner and outer surface etc. |

BALANCING TANK

| | |
|----------------------|------------------------------|
| With two compartment | 6 m ³ |
| Length | =3 m |
| Width | =2 m |
| Depth | =1.20m with free board 20 cm |

| | |
|-----------------------------|--------------------|
| Sludge collection tank | = 3 m ³ |
| Slurry collection tank | =3m ³ |
| Filter bed and Drying bed | nil |
| Waste water collection tank | = 3 m ³ |




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 UT of Puducherry

Cost break up and rate quoted

| S/no | items | Amount (Rs) |
|------|--|-------------|
| 1 | Construction cost of bio gas plant as per above specifications | 4,50,000.00 |
| 2 | | |
| 3 | | |
| 4 | | |
| 5 | | nil |

TOTAL 4,50,000/-

(four lakhs and fifty thousand only) *

Payment conditions :- 50% advance on confirmed work order

40% during fabrication of fixed dome

10 % on completion of work and commissioning of the plant

Thanking you.

Yours faithfully,

J. M. Jayamohan

Ajesh Renewable Energy Solution

PKLRA 50, PETTAH PO. Trivandrum-695024



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MINDS/PO/002/2020

21/11/2020

TO,

J.M. Jayamohan

Ajcesh renewable energy solutions

PKLRA50, PETTAH PO.Trivandrum-695024

Subject: Purchase order for construction of Biogas plant 100kg/day+300 ltrs of food processed effluent

As per the revised quotation dated 25/10/2020 we are pleased to accept your proposal and to award the work based on the conditions mentioned below:

1. Capacity of the plant - biogas plant for scientifically treating 100kgs of biodegradable waste and 300litres of food processed effluent per day generated from the canteen.
2. Construction cost of the plant -4,40,000/-
3. Completion of work-within one month from the date of receipt of purchase order.
4. Payment conditions :
 - 30% advance on confirmed work order
 - 40% during fabrication of fixed dome
 - 30% on completion of work and commissioning of the plant



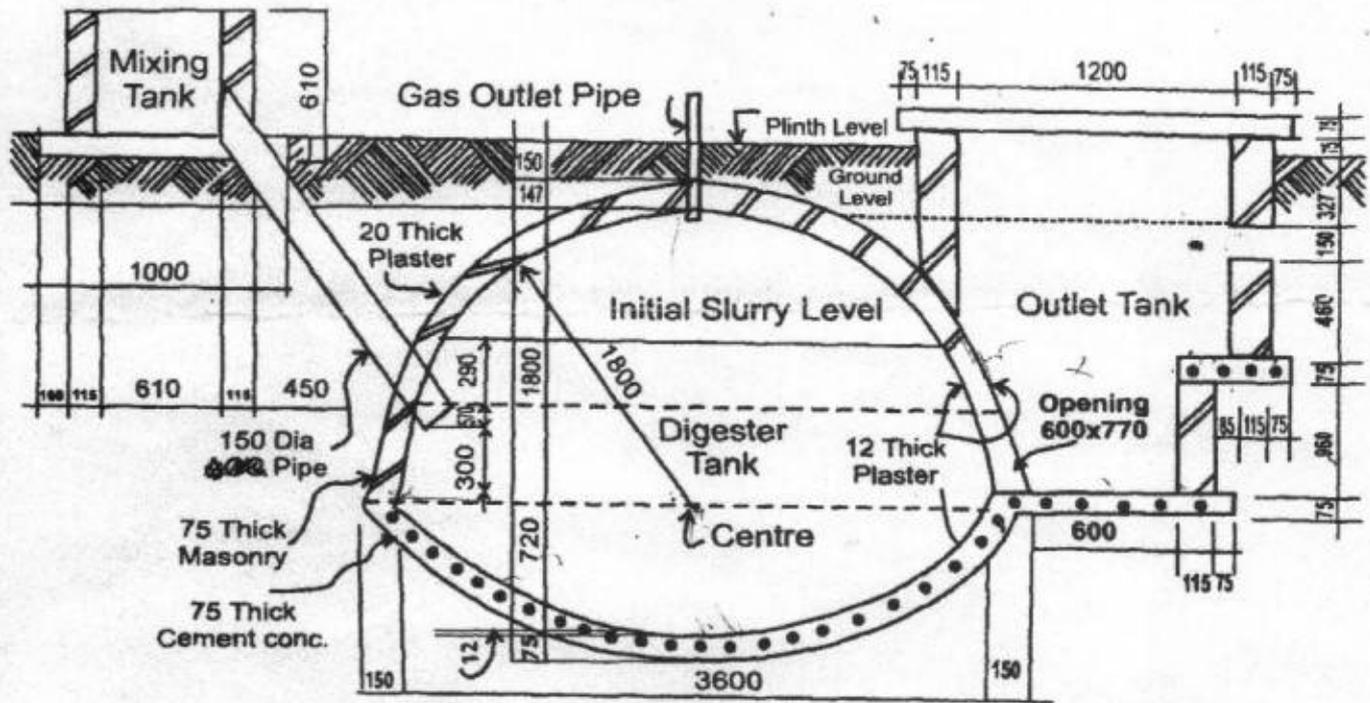
For

Mr.K.P.Ramesh Kumar

Chairman

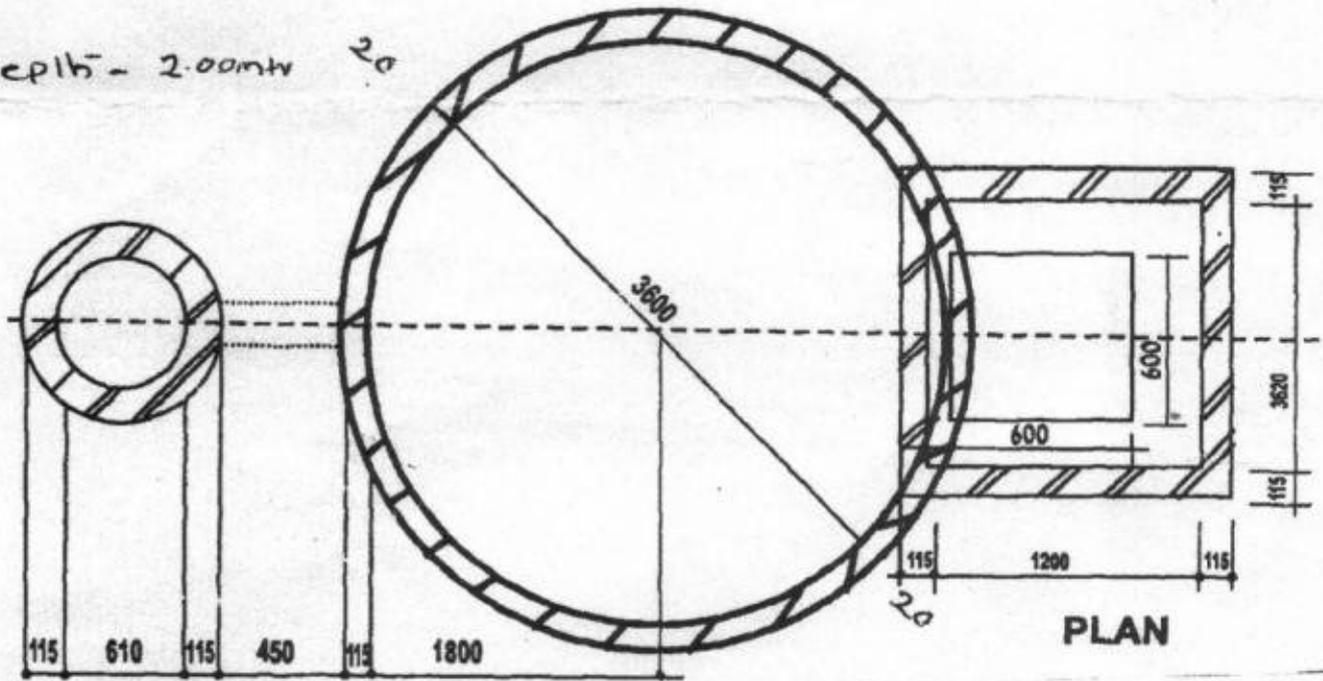
Dr. Anil Meeth, MDS
Principal
Mahe Institute of Dental Sciences & Hospital
Chalakkara, P.O. Palloor, Mahe-673310
U.T. of Puducherry

HRT 40 Days



SECTION

Depth - 2.00mtr



PLAN

Handwritten signature: Anil Melati



Handwritten signature: Dr. Anil Melati, MDS
Principal
Make Institute of Dental Sciences & Hospital
Chalakkara, P.O. Palloor, Mahe - 673310
UT of Puducherry

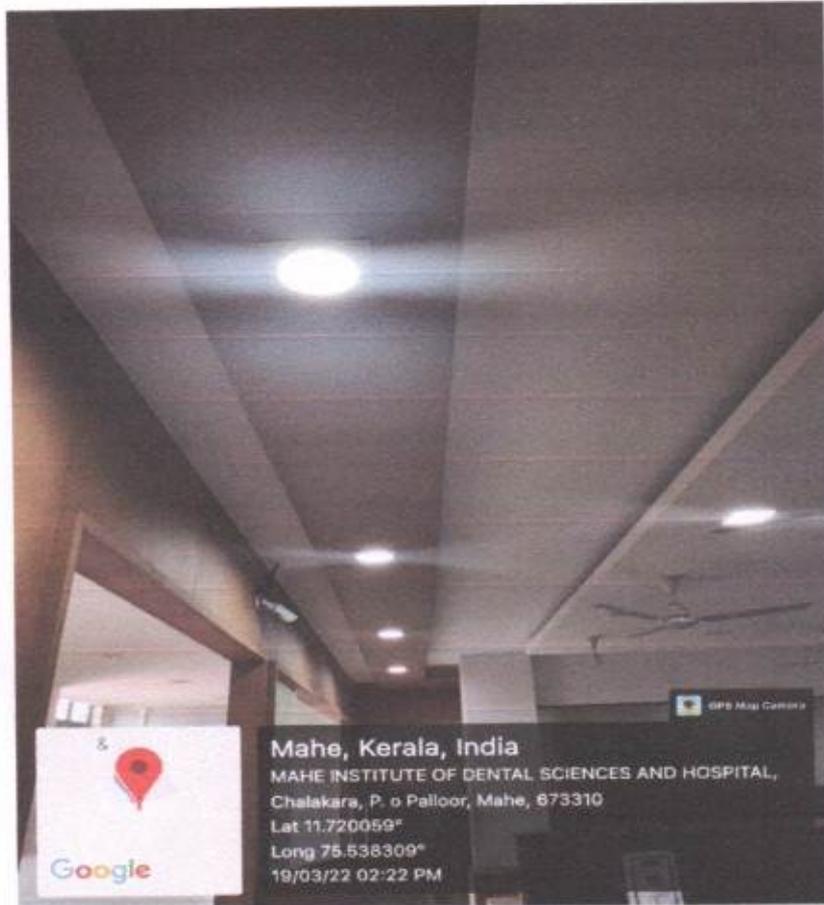


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USE OF LED BULBS



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LED's offers several advantages over traditional light bulbs. LED's are used in the departments, hostels ,clinical areas and the entire campus.




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BILLS AND DOCUMENTS FOR LED LIGHTS

Invoice No. 1145
Ref. No. 1145

09/03/2017

M TRADE LINKS 2017-18
MAIN ROAD, THALASSEERY-670101
PIN: 670101
GSTIN: 32AAAFY1874C12H
E-MAIL: contact@trade-links.com

728

Tax Invoice

Party: MAHE DENTAL COLLEGE
CHALAKKARA
State Name Puducherry, Code : 34

| Sl. No. | Description of Goods | HSN/SAC | GST Rate | Quantity | Rate | Net | Old % | Amount | |
|---------|------------------------------------|---------|----------|----------|--------|-----|--------|-------------------|------------|
| 1 | ZORRO SW LED BULB CROMPTON GREAVES | 8539 | 12% | 20 NOS | 106.00 | NOS | 10.71% | 1,875.00 | |
| | Less: 12% GST ROUND OFF | | | | | | 12% | 225.00 (22.10) | |
| Total | | | | | | | | 20 NOS | ₹ 2,100.00 |

LED Bulbs Purchased to store

PAID
Rs 2100/-

Principal CS/17-12/00554
Babu
7/11/17
30/12/17

PINVD2721
6/11/17
Certified that the goods mentioned in the bill have been received in good condition and taken in to stock and stock register with No.

Store Keeper
MINDS

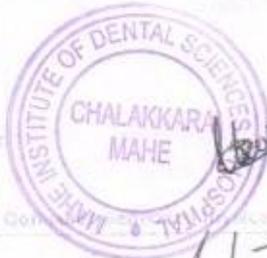
Amount Chargeable (in words)
INR Two Thousand One Hundred Only

| HSN/SAC | Taxable Value | Integrated Tax | | Total Tax Amount |
|---------|---------------|----------------|--------|------------------|
| | | Rate | Amount | |
| 8539 | 1,875.00 | 12% | 225.01 | 225.01 |
| Total | | | 225.01 | 225.01 |

Tax Amount (in words): INR Two Hundred Twenty Five and One paise Only

Company's Bank Details:
Bank Name: PUNJAB NATIONAL BANK
A/C No.: 4050002100182032
Branch & IFS Code: THALASSERY & PUNB0481000

Declaration
We declare that this invoice shows the actual price of the goods described and that all particulars are true and correct.



Verified and Found Correct

Purchase Manager

Principal
Mahe Institute of Dental Sciences & Hospital
MAHE



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ENERGY AUDIT REPORT

Sri Energy Solutions



The Coalition for
ENERGY SAVINGS

07.01.2021

To Whom So Ever It May Concern

We hereby certify that, we had conducted the Energy audit at M/s.Mahe Institute of Dental Sciences and Hospital on 29.12.2020. We certify that Rs.11,36,180/- of annual energy saving potential was found during our Energy Audit.

For Sri Energy Solutions

M.RAMESHKUMAR

BEE Certified Energy Auditor – EA-22303




Dr. Anil Melath, MDS
Principal
Mahe Institute of Dental Sciences & Hospital
Chalukara, P.O. Pallinor, Mahe - 673310
UT of Puducherry

2/57, Church Street, Silukkuvarpatti Post, Dindigul – 624 215
Mobile : 97899 62220 & E-mail : srienergysolutions@gmail.com

Sri Energy Solutions



The Coalition for
ENERGY SAVINGS

05.01.2022

To Whom So Ever It May Concern

We hereby certify that, we had conducted the Energy audit at M/s.Mahe Institute of Dental Sciences and Hospital on 31.12.2021. We certify that Rs.11,05,915/- of annual energy saving potential was found during our Energy Audit.

For Sri Energy Solutions

M. RAMESHKUMAR, B.E., MBA.,
BEE CERTIFIED ENERGY AUDITOR - EA22303
M.RAMESHKUMAR

BEE Certified Energy Auditor – EA-22303



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Mobile : 97899 62220 & E-mail : srienergysolutions@gmail.com