

Increase of accommodation areas in the Holy land in Mina To cope with growing numbers of pilgrims annually while maintaining the overall Architectural character of mina and Arafat As is typical from 1430 years so far.

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Abstract: The sight to the Holy land on mina and Arafat during the Hajj each year familiar to the hearts of Muslims, view tents established on the Holy Land of those areas and became the architectural style of the constants in the year Hajj following the Prophet PBUH but one of the greatest challenges facing operators and organizers for pilgrimage year after year is steady increasing in number of pilgrims. Thus requiring the preparation places equipped with accommodation in tents became Holy covering those territories has limited almost entirely to the pilgrims involved calling based service pilgrims start work projects such as giant draft stoning and lots more but such projects don't fit housing for pilgrims. In Mina and Arafat must be preserved as is, but that no concrete multi-storey buildings where the tents will place disarmament period identity religious spirit as long as high Pilgrims enjoyed on past time. And left us great challenges in resolving the issue of increasing the number of places for pilgrims in those feelings with the inevitable conservation of tents architectural form, nature and Holy as is without modification and any development must not come out about this absolutely fashionable shape. Fortunately, advanced research fields of green architecture, sustainable and means of natural lighting and ventilation in the last decade of the twentieth century and the beginnings of these century are helped in successfully created underground buildings for several roles have natural lighting and aeration during daylight hours as long as the Sun in the liver of the sky while preserving Earth green areas planted with many people rushed to build their homes underground with enjoyment of each space top their Green Witch with provision of energy required for lighting, ventilation and thermal comfort degree of preservation. This search finds that we can work a similar solution for two or more underground which tents in Mina and Arafat and processed for pilgrims in areas with natural lighting and aeration while maintaining the shape and nature of tent above ground.

[Sayed Abdul Khaliq Elsayed and Nothiela Abdul Samie El-Hamouly. **Increase of accommodation areas in the Holy land in Mina: To cope with growing numbers of pilgrims annually while maintaining the overall Architectural character of mina and Arafat As is typical from 1430 years so far.** *J Am Sci* 2012;8(12):745-752]. (ISSN: 1545-1003). <http://www.americanscience.org>. 104

Keywords: Green Architecture - Natural Lighting - Natural Ventilation - Shape and character- building underground.

1. Introduction

Short History of Hajj.

The Hajj is based on a pilgrimage that was ancient even in the time of Muhammad in the 7th Century. According to Hadith, elements of the Hajj trace back to the time of Abraham (Ibrahim), around 2000 BCE. Abraham's wife, Sarah, was unable to conceive, and upon her request, Abraham had taken their female servant, Hagar, as a second wife. Hagar bore Abraham a son, Ishmael. It is believed that Abraham was ordered by God to leave Hagar (Hājar) and Ishmael (ʿIsmāʿīl) alone in the desert. Looking for shelter, food and water, Hagar ran back and forth between the hills of Safa and Marwa seven times with her son. In desperation, she laid the baby on the sand and begged for God's assistance. The baby cried and hit the ground with his heel (some versions of the story say that the angel Gabriel (Jibril) scraped his

foot or the tip of his wing along the ground), and the Zamzam Well miraculously sprang forth.

Prior to Muhammad's era, each year tribes from all around the Arabian Peninsula would converge on Mecca, as part of the pilgrimage. The exact faith of the tribes was not important at that time, and Christian Arabs were as likely to make the pilgrimage as the pagans.^[12] Muslim historians refer to the time before Muhammad as *jahiliyyah*, the "Days of Ignorance", during which the Kaaba contained hundreds of idols – totems of each of the tribes of the Arabian Peninsula, with idols of pagan gods such as Hubal, al-Lat, Al-ʿUzzá and Manat.

Muhammad was known to regularly perform the Umrah, even before he began receiving revelation.^[3] Historically, Muslims would gather at various meeting points in other great cities, and then proceed en masse towards Mecca, in groups that could comprise tens of thousands of pilgrims. Two of the

most famous meeting points were in Cairo and Damascus. In Cairo, the Sultan would stand atop a platform of the famous gate Bab Zuwayla, to officially watch the beginning of the annual pilgrimage.^[12]

In 631 CE, Muhammad led his followers from Medina to Mecca; it was the first Hajj to be performed by Muslims alone, and the only Hajj ever performed by Muhammad. He cleansed the Kaaba, destroyed all the idols, and re-ordained the building as the house of God.^[12] It was from this point that the Hajj became one of the Five Pillars of Islam.

Performing Hajj was a hazardous journey for early pilgrims; Ibn Jubayr noted the skeletons of pilgrims who had died of thirst during the journey. In the seventeenth century a group of Egyptian pilgrims lost over 1,500 people and 900 camels. In 1924 around one-fifth of a group of Syrian pilgrims died and two years later 12,000 are thought to have died during the journey.^[12]

Ramy al-Jamarat

At Mina the pilgrims perform *Ramy al-Jamarat*, throwing stones to signify their defiance of the Devil. This symbolizes the trials experienced by Abraham while he was going to sacrifice his son as demanded by Allah. The Devil challenged him three times, and three times Abraham refused. Each pillar marks the location of one of these refusals. On the first occasion when Ramy al-Jamarat is performed, pilgrims stone the largest pillar known as Jamrat'al'Aqabah.^[12] Pilgrims climb ramps to the multi-levelled Jamarat

Bridge, from which they can throw their pebbles at the jamarat. On the second occasion, the other pillars are stoned. The stoning consists of throwing seven pebbles.^[4] Because of the crowds, in 2004 the pillars were replaced by long walls, with catch basins below to collect the pebbles.

Eid al-Adha

After the Stoning of the Devil, the pilgrims staying in mina in tents for three days for worship starting with perform animal sacrifices, to symbolize God having mercy on Abraham and replacing his son Ishmael with a ram, which Abraham then sacrificed. Traditionally the pilgrims slaughtered the animal themselves, or oversaw the slaughtering. Today many pilgrims buy a sacrifice voucher in Makkah before the greater Hajj begins, which allows an animal to be slaughtered in their name on the 10th, without the pilgrim being physically present. Centralized butchers sacrifice a single sheep for each pilgrim, or a cow can represent the sacrifice of seven people. The meat is then packaged and given to charity and shipped to poor people around the world.^[4] At the same time as the sacrifices occur at Mecca, Muslims worldwide perform similar sacrifices, in a three day global festival called *Eid al-Azha*.^[12]

Number of foreign pilgrims by year

According to the Royal Embassy of Saudi Arabia, the following number of foreign pilgrims arrived in Saudi Arabia each year, to perform the Hajj:^[20]

year	Number of pilgrims	year	Number of pilgrims	year	Number of pilgrims
1920	58,584	2001	1,363,992	2010	2,521,000
1921	57,255	2005	1,534,759	2011	2,789,399
1922	56,319	2006	1,654,407	2012	2,927,717
1996	1,080,465	2007	1,707,814		
1997	1,168,591	2008	1,829,841		
1998	1,132,344	2009	1,913,000		

Statement statistics pilgrimage in 1432 H

The total number of pilgrims in this year 1432 (2,927,717) pilgrims, an increase of 5% on the number of pilgrims in the year 1431

Interest Statistics General And information : The number of pilgrims 2,789,399 pilgrims declared interest Statistics General And information Tuesday the results statistics for Hajj this year 1431. The total number of pilgrims this year (2.789.399) two and seven hundred and eighty nine thousand, three hundred and ninety-nine pilgrims of them (1.799.601) one million seven hundred and ninety nine thousand, six hundred and one pilgrims from outside Saudi Arabia and the rest and the number (989.798) nine hundred and nine and eighty thousand, seven hundred and ninety and eight pilgrims from

within the Kingdom of the vast majority of whom are resident non-Saudis.

Meanwhile, figures are available for *Hajj* visas issued in the United States in 2000; these are more than double the number for 1996. The breakdown is as follows:

Consulate location	1996	2000	change
Washington DC	1,845	3,931	+ 113 %
New York, NY	2,458	4,311	+ 75 %
Los Angeles, CA	841	2,015	+ 139 %
Houston, TX	195	619	+ 217 %
TOTAL	5,339	10,876	+ 103 %

2. Problem statement

10th of Dhu'l-Hijjah: the pilgrims will be in Mina and they stay for three days for the stoning (ramy) of El Jamarat and wearship for alla; the stoning must be performed according to pre-

determined schedules. In the first day, the stoning of Jamarat ulKubra is followed by shaving/cutting of hair (Halq/Taqseer).

Here seven times you will stone the pillar that represents the devil, saying "Bismillah, Allahu akbar" each time you throw a pebble. "Bismillah" means "in the name of Allah". "Allahu akbar" means "God is great".

Women and those who are old or otherwise infirm need not themselves perform rami, but staying in the tents (as accommodation) and leaving rami to those delegated to perform it on their behalf.

The pilgrims will now leave the state of Ihram. Shave their hair (or if you are a woman clip your hair). The pilgrims may now shower, shave, and change into their normal clothes. The prohibitions imposed by Ihram are now removed, except that they must not have sexual relations. (Husband and wife may not enjoy conjugal relations until after Tawaf al-Ifadha - the Circumambulation of the Kaaba, central to the Hajj rites.)

The problem now is how the constant number of tents which covered all the area of the city of mina will accommodate the increasing numbers of the pilgrims each year without construct any buildings affecting the Architectural character of mina As is typical from 1430 years so far.

3. Research Objective:

The research objective is how to Increase the accommodation areas in the Holy land in Mina to cope with growing numbers of pilgrims annually while maintaining the overall architectural character of mina (Tents) as is typical from 1430 years so far.

4. How modern technology has been employed to facilitate the Hajj.

A sophisticated broadcasting network has been installed to cope with the requirements of the Hajj. The safety and comfort of the Hajjis has become a major concern for the authorities, necessitated by their sheer volume in recent years. The newly laid floor tiles were made of specially developed heat-resistant marble, and to further ensure the comfort of worshippers the whole structure is cooled by one of the world's largest air-conditioning units. To facilitate the movement of worshippers to the newly developed roof area of the Holy Mosque during the busiest seasons, additional escalators have been incorporated alongside a number of fixed stairways in the northern and southern sides of the building. Moreover, in order to reduce the build-up of traffic around the Holy Mosque, the development project has involved the construction of a new tunnel for vehicles in the vicinity of Alsouk Alsagir. Pedestrian routes and tunnels have also been carefully planned and laid out to ensure the safety of the worshippers.

5. The solution for the research problem:- Mina

Mina, which lies between the Holy City of Makah and Muzdalifah, is now known as tent city. Here are the white pillars representing the devil at which the pilgrims cast the pebbles they gathered at Muzdalifah.

All pilgrims will stay in mina for three days, and as we see from the history of hajj the pilgrims used to see mina the city of tents from 1433 years up till now so the only way to accommodate the increasing number of pilgrims year after year from the researchers point of view, is to construct floors under the tents deep in ground and keep the view of the tents above the ground as it has been for the past 1433 years and the years to come.

5. New design for tent head to co-op with HUVCO – Parans Fiber Optic Skylight:-

Description:-

The HUVCO – Parans Fiber Optic Skylight is a unique way to bring natural light deep into an interior space. The system is comprised of an exterior daylight collecting panel which has 64 Fresnel lenses on the inside. These lenses rotate to track the sun automatically, controlled by an internal computer. Each lens acts like a magnifying lens to focus the sunlight. This focused sunlight is directed into a fiber optic strand, each individual strand is combined with other strands to create a fiber optic cable, 6 mm in diameter. There are four fiber optic cables coming out of each panel. Each of these cables can be up to 60 feet long. These cables can be routed through walls or ceilings and bent around obstructions. Each fiber optic cable can be used to bring the natural light to a different interior luminary; or they can be combined in one luminary. There are a variety of luminaries available, some of which combine the natural light and electric light into a hybrid fixture. The hybrid fixture can be combined with a sensor that will automatically turn the electric lights off when the natural light is sufficient. The Parans Fiber Optic Skylight was developed in Sweden and is being imported exclusively into the US by HUVCO.

Sustainable Features

Since 1996 HUVCO Day lighting Solutions™ has helped thousands of clients save millions of dollars in lighting expenses, put our experience to work for you. The fiber optic skylight is a unique way to bring natural light deep into a building where it was not previously possible. This allows for the electric lights to be turned off during the day, which results in lower lighting bills and less energy demand. Natural light has also been attributed to increased productivity, increased morale, better test scores and increased retail sales.

**The advantages of the Parans systems: - ⁽¹¹⁾
(www.wascoskylights.com)**

1. The collected light from one SP3 is approximately 6000 lumen. A little light is absorbed and lost for each meter of optical fiber cable, so as an example the output is around 3700 lumen after 10 m.
2. The Parans solar light system works on the parallel light of the sun and needs direct sunlight to work. On partly cloudy days, this gives a beautiful dynamic light, as clouds pass overhead. On overcast days and at night artificial lights are needed.
3. The SP3 can follow the sun over all sun hours of the day. The amount of sun hours varies with the local weather and over the year. The SP3 makes sure you will not miss those sun hours.
4. The UV-radiation is blocked from entering the Parans system. This means that human skin will not tan, and furniture and other surfaces will not bleach. Museums love the Parans system light, since it enables them to show classical art in natural light just like when it was created, but without destroying the colours or materials.
5. The Parans system also filters out IR, so very little heat is brought inside. In combination with the tiny penetration of the building, this may be a key property when working with energy efficient buildings. Cooling accounts for about 15 percent of the energy consumption in buildings.
6. Sunlight is instant. With the exceptions for the scientific achievement of storing light for 1 ms in a Bose-Einstein element, light cannot be stored.
7. The products of Parans come with a 24 months' limited manufacturer's warranty. All materials and components are designed to sustain at least 15 years.
8. The Parans system can be moved, but the receiver needs to be programmed for the new location. Contact your reseller or Parans.
9. The Parans receiver consumes 10 W on average. The electricity cost per year is then less than €

10 (based on average European electricity costs).

6- Conclusions:

After the above study and discussion; the researchers find it the only way to accommodate the increasing rate of pilgrimige each year; is to construct new underground floors beneath the tents level and to maintain the architectural character of the context above ground as it has always been. The new underground floors will be lit naturally as far as it is sunny. Mecca is famous for being a sunny city all through the year.

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11/21/2012

Appendix



Fig. (1) Identity and character of architecture existing in holy land of mina from 1433 years.



Fig. (2) Identity and character of architecture existing in holy land of Arafat from 1433 years.



Fig. (3) Establishment of multistory concrete buildings changing and the shape and nature of the identity of the place



Fig. (4) Jamarat ul Kubra in Mina



Fig. (5) Stoning of the devil, 2010



Fig.(6) Tents prepared in mina for pilgrims Accommodation

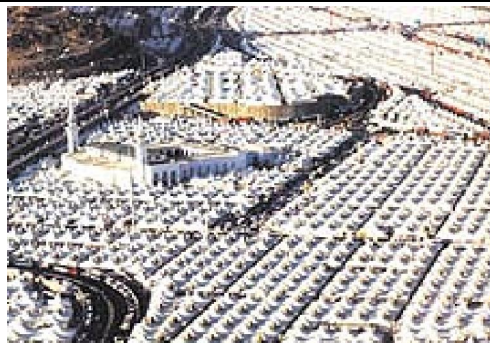


Fig (7) City of tents, Mina

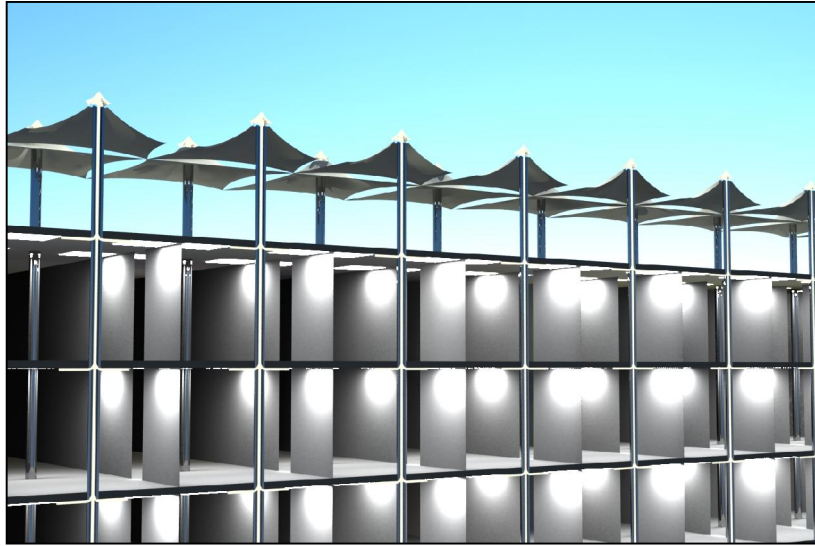


Fig. (8) Vertical section down the tents shows basements floors with natural light coming from the head of tents through the construction hollow column for lower floors - designed by researchers used Parans company system (see Figs. (6, 7, 8) for details- and moving across central carrier inside columns tents and extended as columns construction to basements under tents-located on the Sikh land to spread light and lighting of all spaces infrastructure without electricity throughout the daylight hours, thus saving energy, which is one of the main objectives of the project along with large residential spaces to meet Increase the number of pilgrims every year .

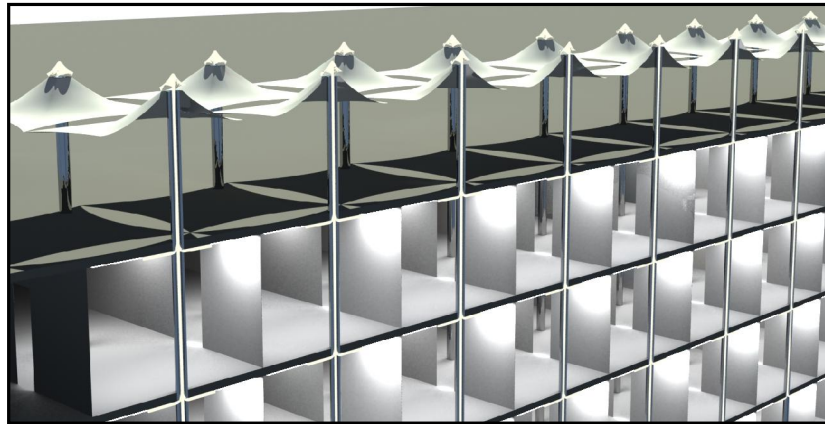


Fig. (9) Another vertical strip of higher level relationship demonstrates tents floor tents currently bottom roles and possibly former explains how to transfer new natural light during the day from top header for tents and sent through the vicious circle of lighting columns construction basements. Designed by researchers.

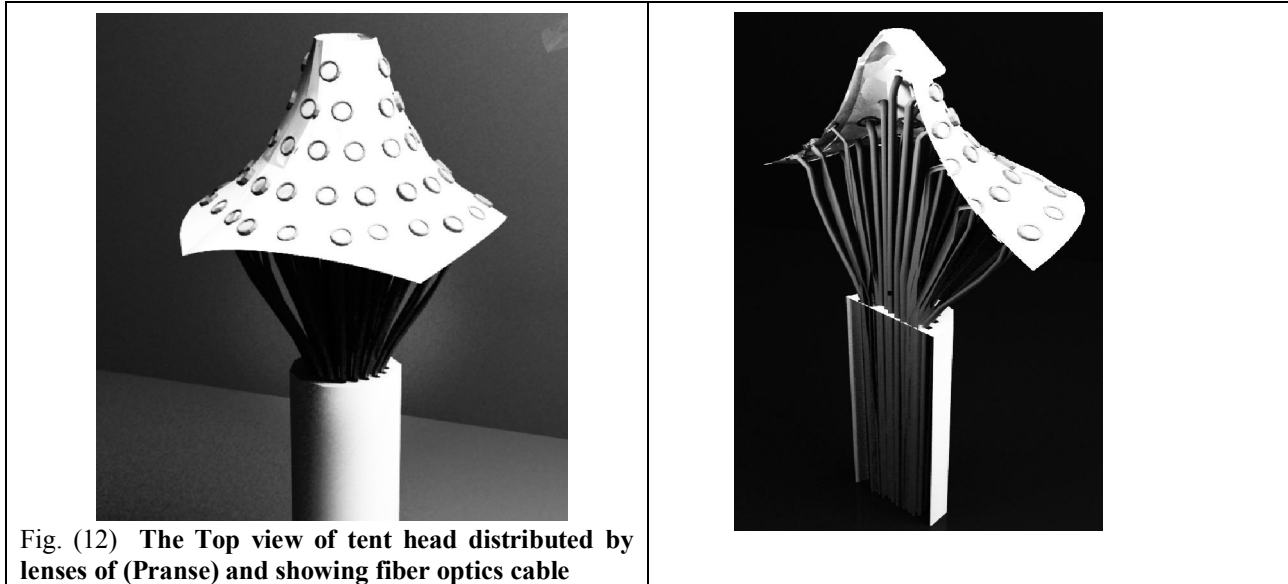


Fig. (12) The Top view of tent head distributed by lenses of (Pranse) and showing fiber optics cable

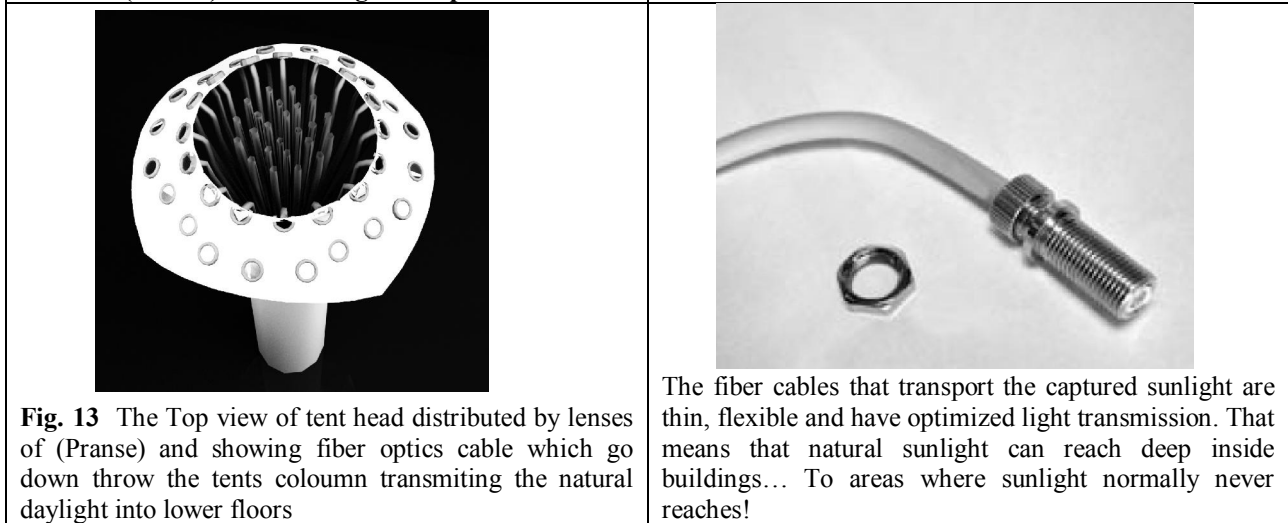


Fig. 13 The Top view of tent head distributed by lenses of (Pranse) and showing fiber optics cable which go down through the tent's column transmitting the natural daylight into lower floors

The fiber cables that transport the captured sunlight are thin, flexible and have optimized light transmission. That means that natural sunlight can reach deep inside buildings... To areas where sunlight normally never reaches!



Fig. 15 The Parans L3 Spotlight creates a 30° light beam, which can be used to highlight or illuminate.

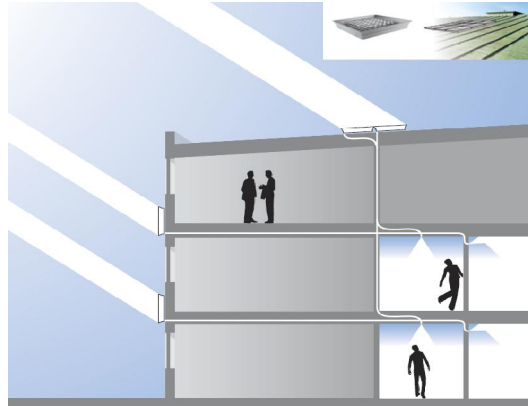


Fig 16 : Parans SP3 uses the direct sunlight, whose rays are practically parallel and can be focused using lenses. The SP3 has a set of 36 lenses, each focusing the light onto the end of a plastic optical fibre. The fibres are bundled in cables for protection and can be 5, 10, 15 or 20 meters long. These are the cables that transport the light.

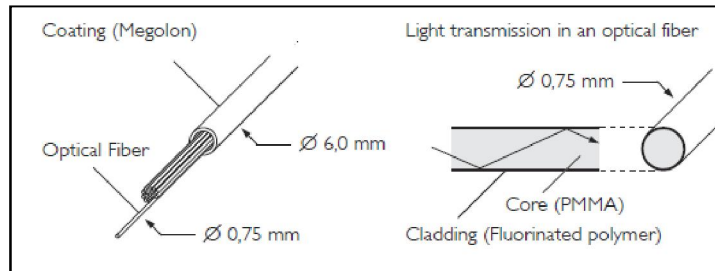


Fig 17: The fiber cables that transport the captured sunlight

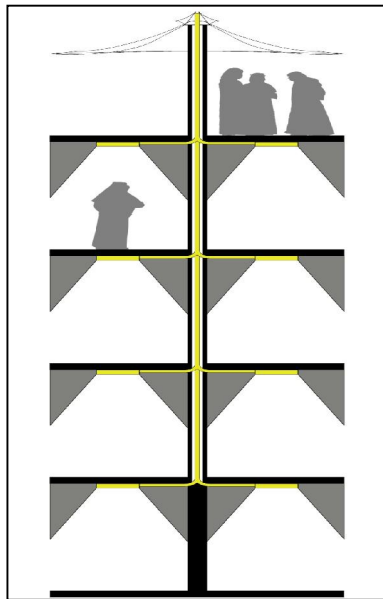


Fig. 18: Vertical strip down tents shows basements under the tents and notes the entry of natural light through top of the tents (head of the tent) designed by researchers have used Parans company system (see Figs. (6, 7, 8) for details and moving across central carrier inside columns tents and extended as columns construction to basements under tents-located on the sikh land to spread light and lighting of all spaces infrastructure without electricity throughout the daylight hours, thus saving energy, which is one of the main objectives of the project along with large residential spaces to meet Increase the number of pilgrims every year.