



*Tentsnology Tent & House Co., Ltd*

ADD: No. 156, Jiaotong West Road, Rudong, Nantong, Jiangsu, RPC

TEL: +86-513-8402 0363 FAX: +86-513-8026 0115

Email: info@tentsnology.com webpage: <http://www.tentsnology.com>

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# **Tent Structure**

## **Installation & Maintenance**

### **Instructions Manual**

**April, 2007**





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## **I. Tent Description:**

Main body frame of the tent introduces special high tension hollow aluminum alloy & steel structure bridge pieces. The adjustable base could tackle the problems due to the out-of-flatness of the ground. Also, the tent adopts imported 1000D PVC tent fabric as the ceiling and side wall fabric. This tent fabric features good tensile strength, rainproof, light-tight and ultraviolet resistance. Fireproof level thereof is subject to the State GB 8624-5.2 B2 Standard. Also, high frequency welding technology is adopted. The tent wind resistance capability: as calculated via design wind pressure of  $0.56 \text{ kN/m}^2$  and wind velocity of 30 m/s, 80—100 km/h is achieved. The tent features high structural strength, compactness, convenient storage and flexible removal & mounting. Currently, 260 series and 400 series tent, including more than 18 specifications are available. The clients could choose the needed specifications thereof based on the ground conditions and usage, so as to put up the tent quickly. Also, the custom-made tent could be put up as required, so as to provide you with a total solution.





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### II. Tent series specifications

260 series					400 series				
Table 1					Table 2				
<div>type specification</div>	a	b	H	F	<div>type specification</div>	a	b	H	F
6/260	6	3	2.6	18㎡	10/400	10	5	4	50㎡
8/260	8	3	2.6	24㎡	15/400	15	5	4	75㎡
10/260	10	3	2.6	30㎡	15/400*	15	5	5*	75㎡
Four Kok Pavilion	3	3	2.6	9㎡	18/400	18	5	4	90㎡
Four Kok Pavilion	4	4	2.6	16㎡					
Four Kok Pavilion	5	5	2.6	25㎡	18/400*	18	5	5*	90㎡
Six Kok Pavilion	3×6		2.6	23.4㎡	21/400	21	5	4	105㎡
3/260*	3	3	2.6	9㎡					
4/260*	4	3	2.6	12㎡	21/400*	21	5	5*	105㎡
12/260*	12	3	2.6	36㎡	25/400	25	5	4	125㎡
Note:									
1.Specification with * in the table is the special type. So, normal supply is unavailable.									
2. For 400 series tent, color steel plate complex hard wall can replace the side wall fabric and aluminum alloy & glass gate. The specifications thereof include double gate:2.8×2.2, simple gate: 2.8×1.1.									
3. As required by the clients, we could also offer relevant wood floor, air-condition, air exhaust facilities, fabric, curtain, de Luxe lighting instruments, carpet and so on.									



### III. 260 series tent structural diagram

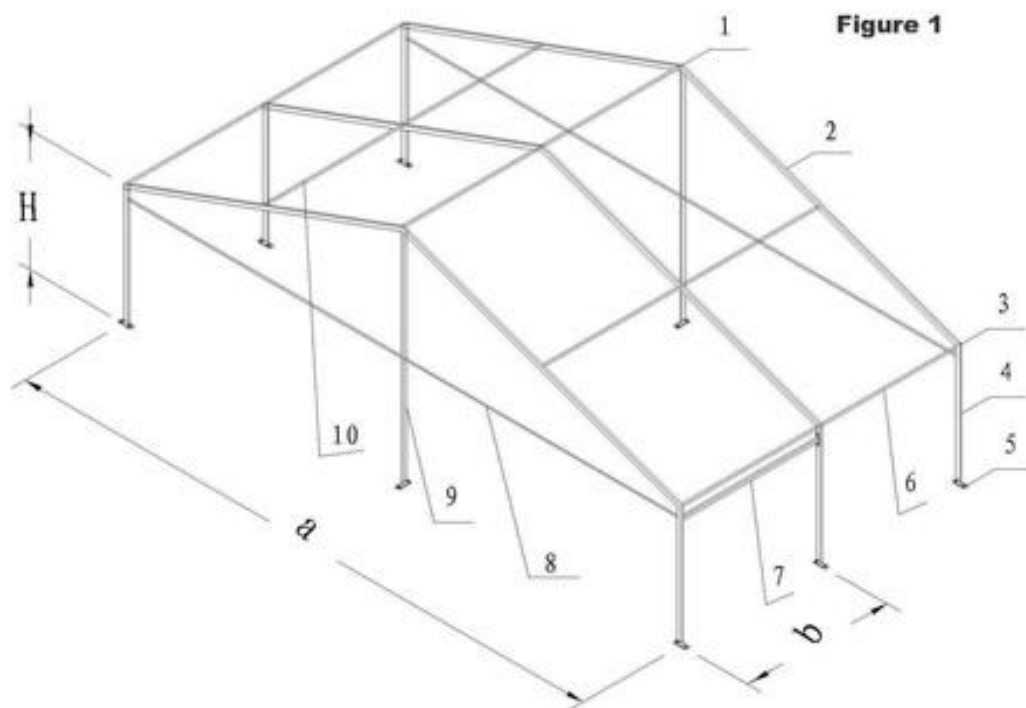


Figure 1

### IV. 260 series fundamental configuration diagram

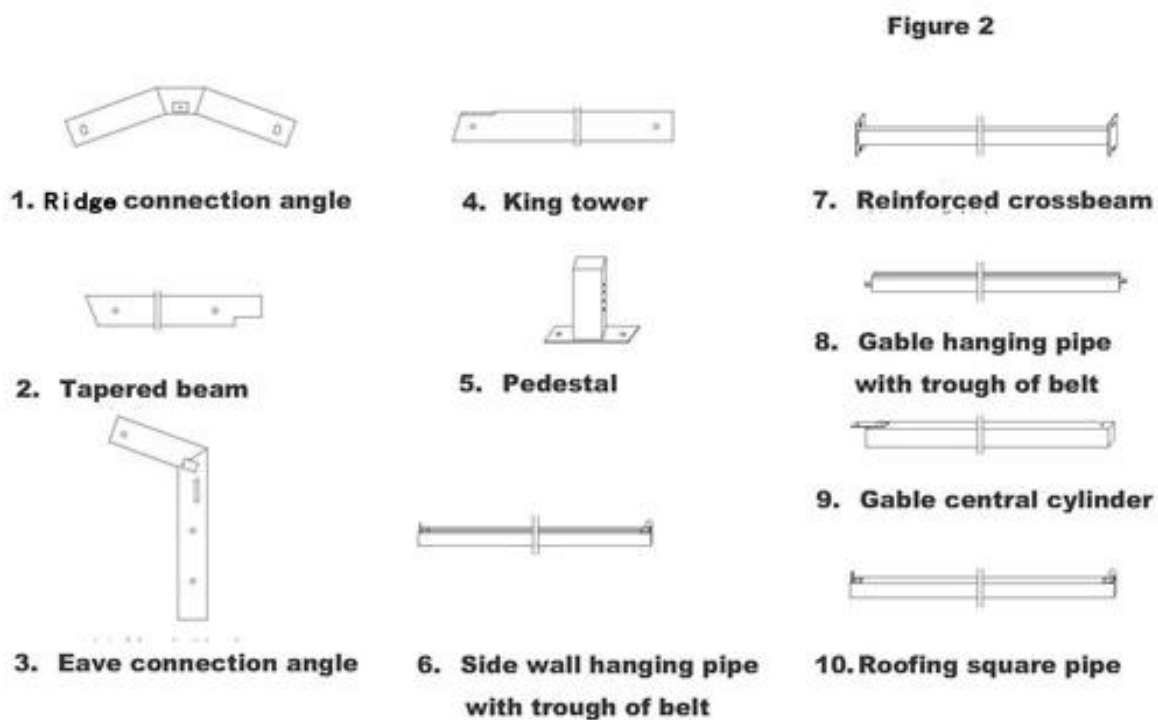


Figure 2

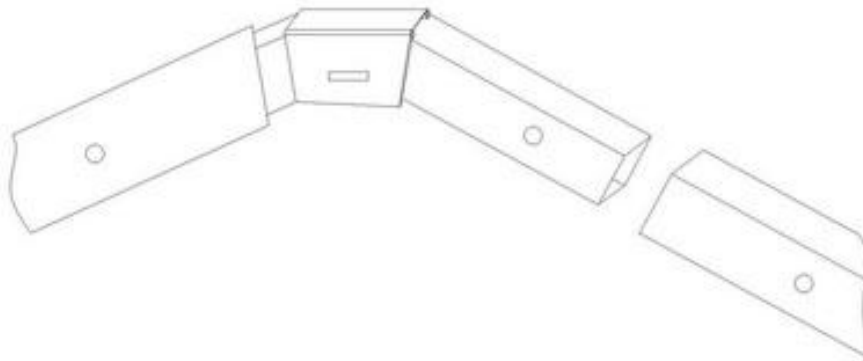


## **V. Description on installation of principal components**

### **1) Tapered beam & ridge connection angle installation:**

As per figure 3, tapered beams shall be inserted into the ridge connection angle respectively, and then bolted up.

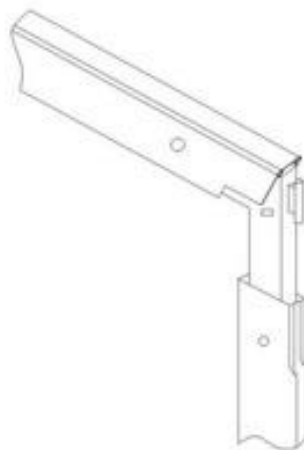
**Figure 3**



### **2) Installation of tapered beam, ridge connection angle and king tower**

As per figure 4, each part shall be inserted and bolted up.

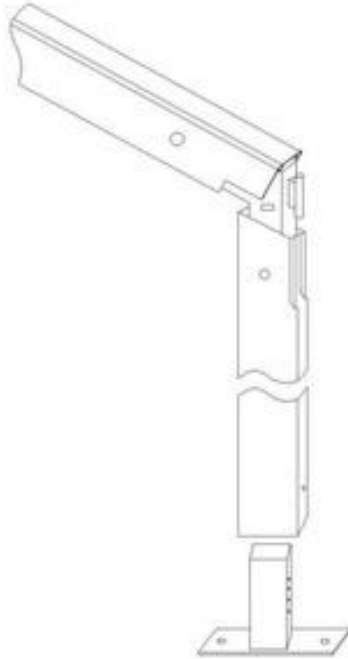
**Figure 4**





### 3) King tower & pedestal mounting

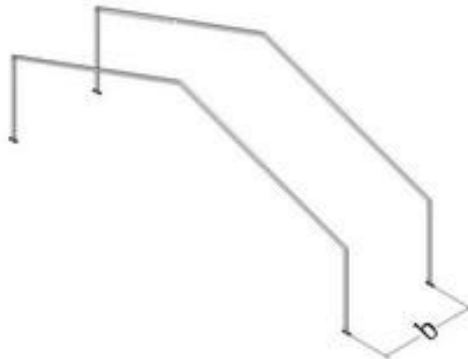
As per figure 5, king power and pedestal shall be inserted each other and bolted up.



**Figure 5**

### 4) Vertical frame:

As per figure 6, the finished frames shall be positioned according to rated span b and set upright manually.



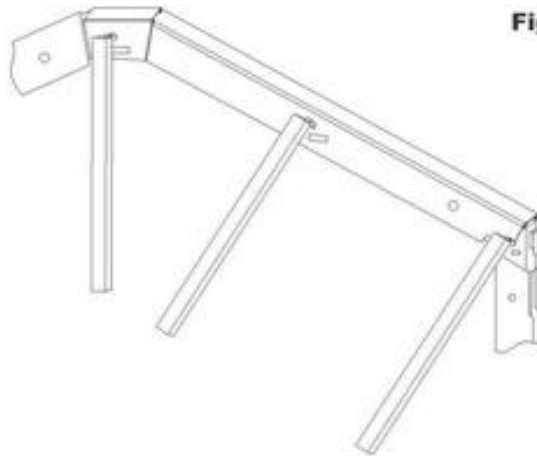
**Figure 6**





### **5) Side wall pipe and roofing square pipe**

As per figure 7, the side wall pipe with bend hanger shall be hung into the U-mode tache of eave connection angle, and then uplifting the other end of the square pipe via the special yoke lever, so as to hang it inside the U-mode tache of the ridge connection angle at the other side. The rest square pipes installation can be deduce accordingly.



**Figure 7**

### **6) Reinforced crossbeam mounting:**

As per figure VIII, reinforced crossbeam and king tower shall be bolted up; single tent must be equipped with reinforced crossbeam and king power (both side), pedestal shall be fixed on sides. One set shall be consolidated for every 3 or 4 sets.

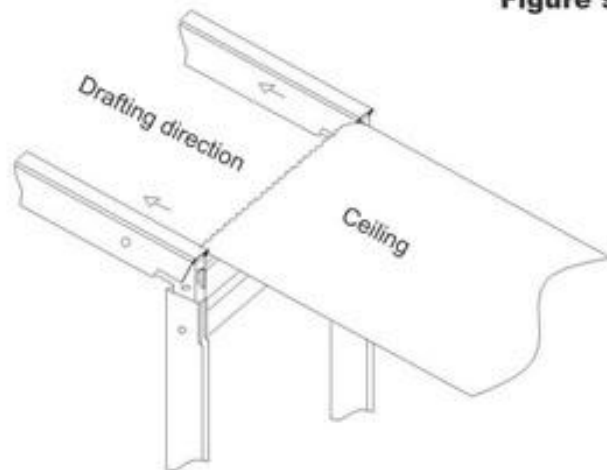


**Figure 8**



## **7) Installation of ceiling fabric**

As per figure 9, tent fabric strip shall be inserted into the relevant shaped orifices of tapered beam from the same direction respectively, and such tent fabric strip shall also be tugged from the other way around, so as to keep equal at both sides.



**Figure 9**

## **8) Installation of ceiling stretching rod**

As per figure 10, tent fabric stretching rod shall be inserted into the superposed seam at both sides of the tent fabric and tightened properly with tension button or tensile screw rod.

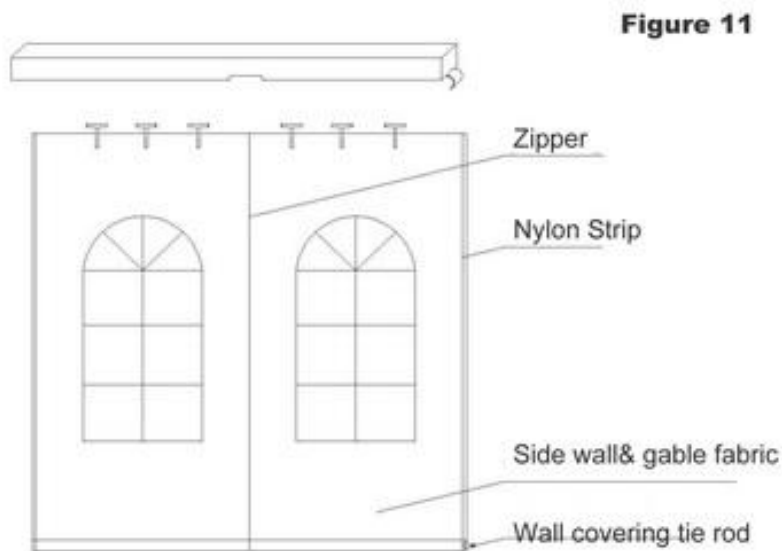


**Figure 10**



### 9) Installation of side wall and gable fabric

As per figure 11, the t-shaped taches of the wall covering shall be inserted into the caulking groove of the periphery hanging pipe, and then string of the tent fabric should be inserted into the single v-groove of king tower; the lower part of wall covering shall be fixed by the tie rod.

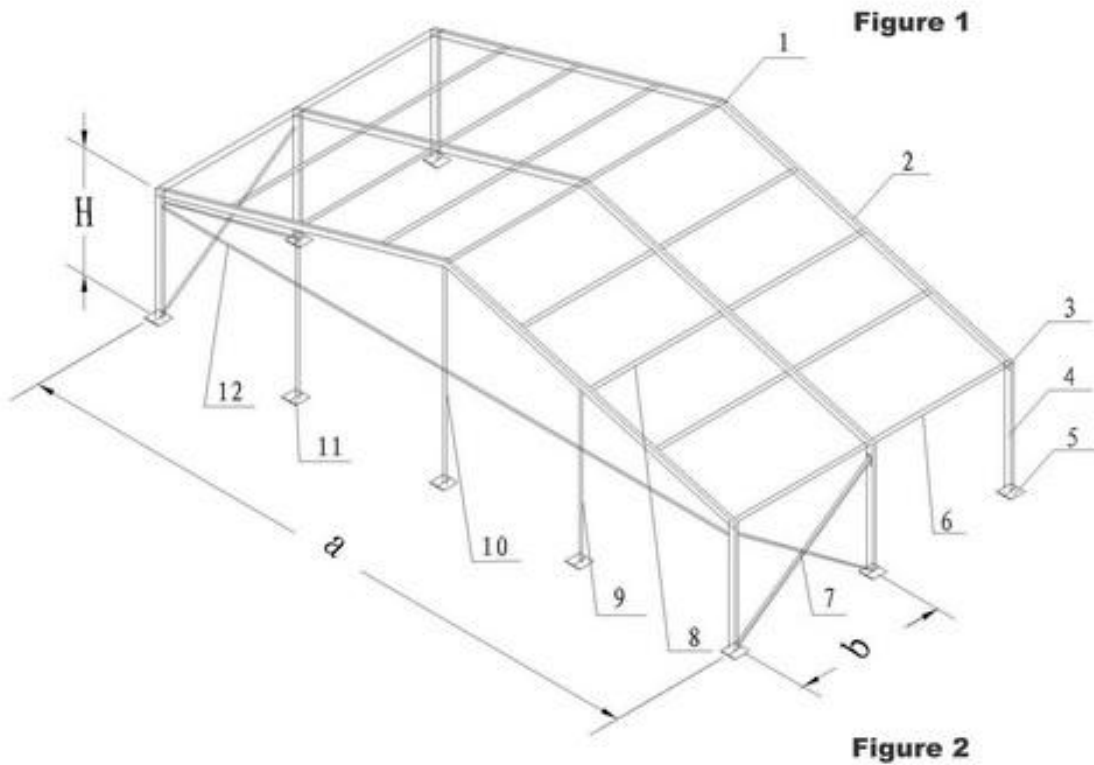


### 10) Fixing of king tower position

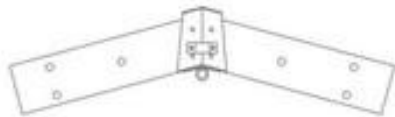
The position of king tower is ascertained according to the ground conditions. The pedestal shall be adjusted, so as to keep it smooth, steady, parallel and vertical, and then punching the ground and mounting the expansion bolts or mounting drill steel and ground frame, which are fixed by heavy object (stone block and sand dune, etc).



## VI. 400 series tent structural diagram



## VII. 400 series fundamental configuration diagram



**1. Ridge connection angle**



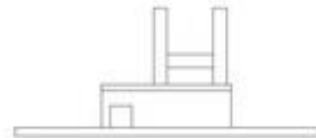
**2. Tapered beam**



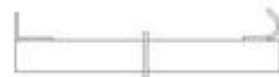
**3. Eave connecting plate**



**4. King tower**



**5. King tower pedestal**



**6. Edge & Gable hanging pipe with trough of belt**



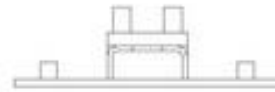
**7. Cross stay bar**



**10. Gable central cylinder**



**8. Roofing square pipe**



**11. Gable pedestal**



**9. Gable lateral column**

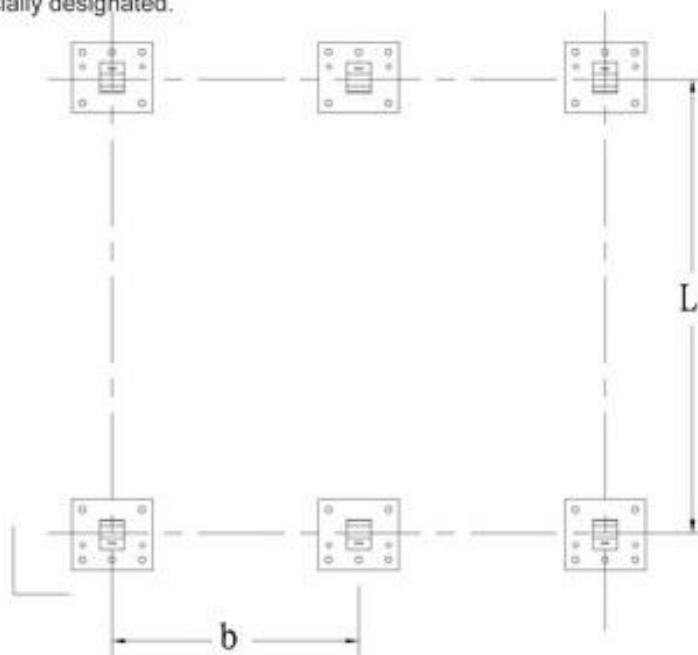


**12. Edge & Gable hanging pipe  
with trough of belt (right and left)**

## VIII. Description on installing of principal components

### 1. Laying-out for on-site putting up

Based on overall layout of putting up and relevant tent specification, the laying-out shall be carried out at the putting-up site first as per figure 3, so as to ascertain the pedestal position and the sizes of  $b$  and  $L$ ; then drilling the bottom outlet of expansion bolt. (Exclusive of the fixing via ground frame or drill steel) \* $L$  size is specially designated.



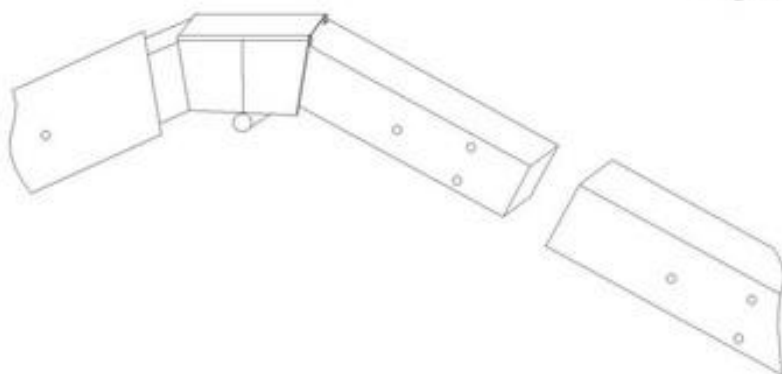
**Figure 3**





## **2. Installation of ridge connection angle and tapered beam:**

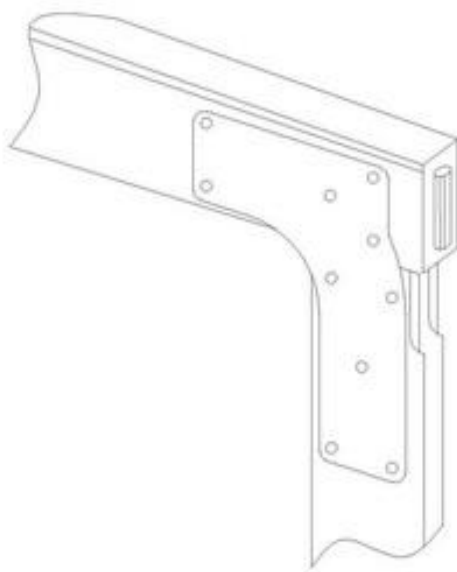
As per figure 4, ridge connection angle shall be inserted into the right and left side of crossbeam respectively, and then bolted up.



**Figure 4**

## **3. Installation of king tower & tapered beam:**

As per figure 5, connecting plate, tapered beam and king tower shall be fastened via bolts. If the electric equipment is needed, relevant insulated joint frame of electric circuit shall be installed.

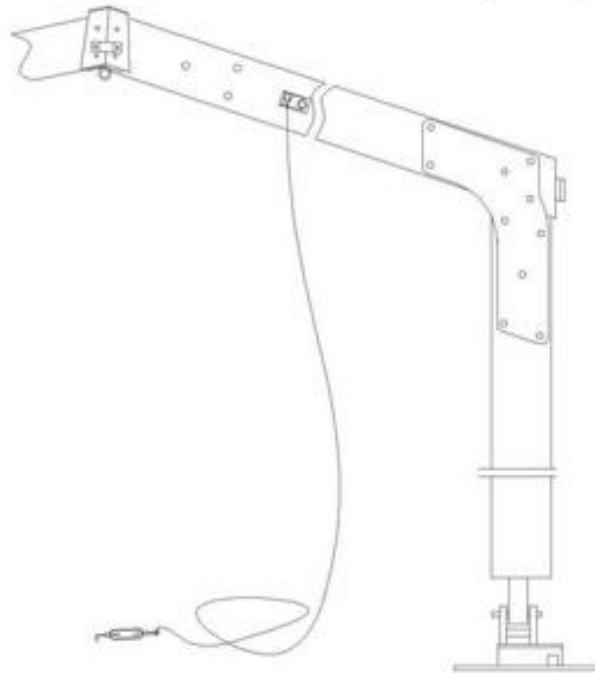


**Figure 5**



#### 4. King tower & pedestal mounting

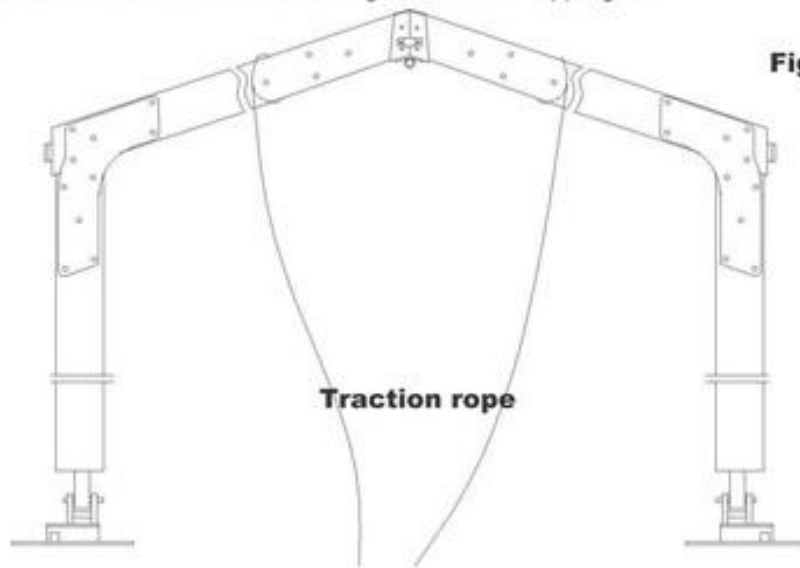
As per figure 6, build-in pin hole and pedestal pin hole inside the king tower shall be aligned and inserted into the straight pin and split pin respectively. The rest can be deduced accordingly, so as to complete all of the installation procedures. Steel cable shall be pre-assembled on the tapered beam of the position where cross stay is mounted. One end of steel cable stud shall be adjusted tightly.



**Figure 6**

#### 5. Vertical frame:

The electric circuit configuring shall be well prepared at the very beginning) as per figure VII, the connection between traction rope and tapered beam shall be conducted properly and safely via the towing equipment (such as crane and forklift, etc.), so as to raise the first pair of frames. For the other side thereof, the back-tie cord must be used, so as to avoid overdrawing of forklift and toppling over.



**Figure 7**

**Traction rope**



## 6. Installation of cross stay bar

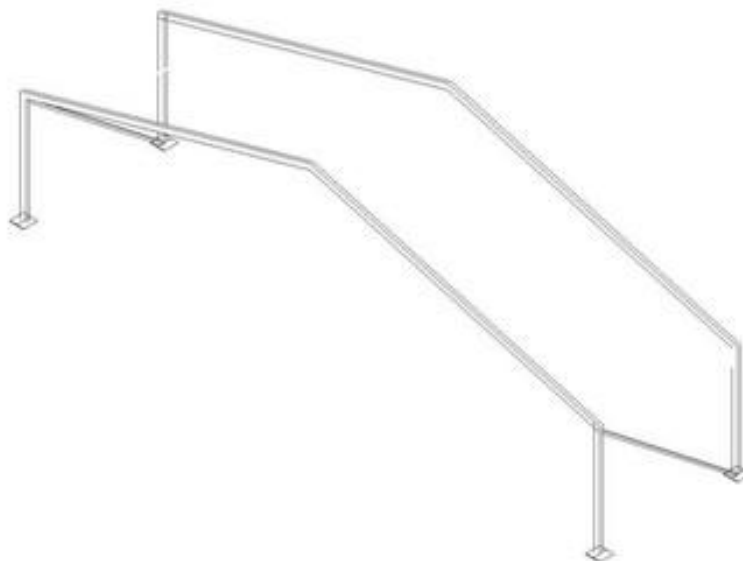
As per figure VIII, the cross stay bar shall be connected and fastened with the bolt and pedestal via straight pins. Such connection and fastening shall be carried out simultaneously. (Single tent must adopt the cross stay bars, while for the coupled tents, one pair of cross stay bars shall be installed every 4~5 tents. The rest installation can be deduced accordingly. Both ends thereof must be equipped with cross stay bars).



**Figure 8**

## 7. Standing up the second frame:

The same as 5; see figure 9

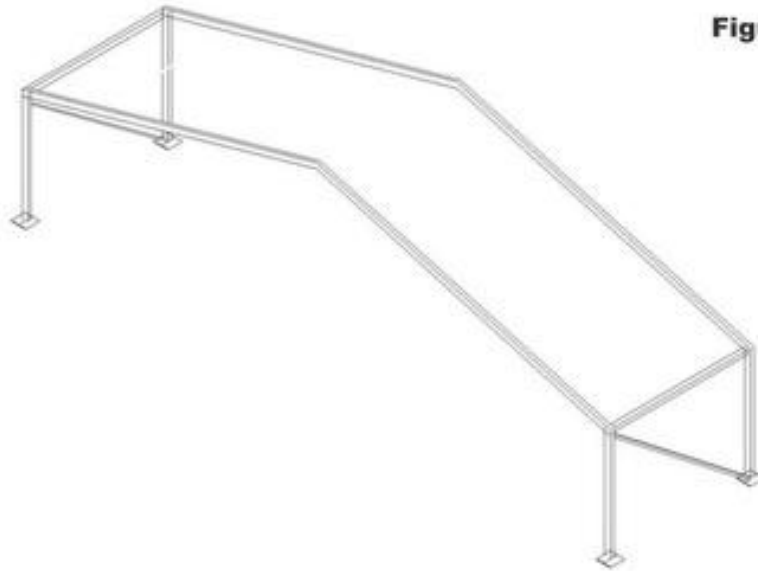


**Figure 9**



### **8. Side wall hanging pipe with trough of belt**

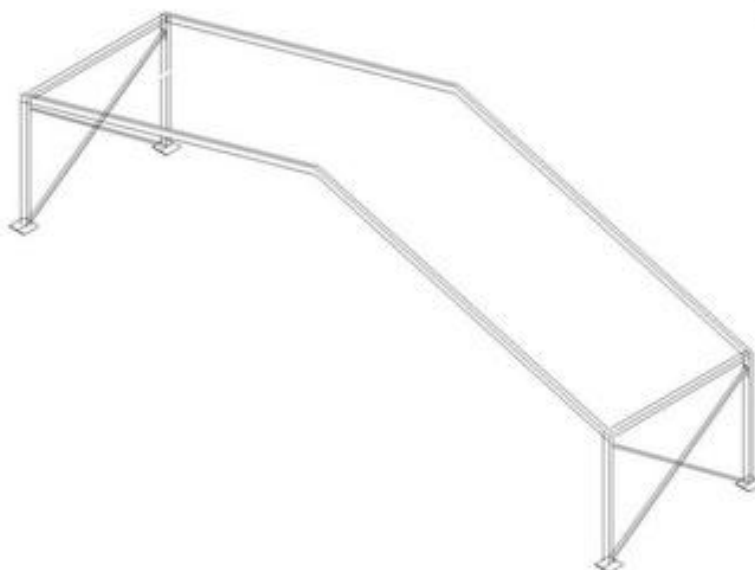
As per figure 10, the crotch part of side wall pipe shall be firstly inserted into the relevant U-mode tache of the upright gable, and then the other side thereof shall be inserted into the relevant U-mode tache by the jointing efforts of the workers and crane operators (both sides shall be handled simultaneously)



**Figure 10**

### **9. Installation of the second cross stay bar**

As that indicated in 6, the pair of the negative direction shall be installed as same as per figure 11.



**Figure 11**



#### **10. Installation of Roofing square pipe:**

As per figure 12, Roofing square pipe with bend hanger shall be firstly inserted into the U-mode tache inside the ridge connection angle, and then the other end of the square pipe shall be pushed up and inserted into the other side of U-mode tache of the ridge connection angle. The rest can be deduced accordingly, so as to complete the installation of other square pipe and erection of all gables.

Note: square pipe tache shall be thoroughly inserted into the U-mode tache, if not, fallout may cause the casualties.



**Figure 12**

#### **11. Installation of gable central cylinder and lateral column**

As per figure 13, the internal part of angle square shall be connected with the tapered beam upward via the bolts. Also, the internal part of angle square could be installed on the tapered beam and lifted by crane prior to putting up the gable.



**Figure 13**





## **12. Installation of gable hanging pipe with trough of belt:**

As per figure 14, adjusting the positions of central cylinder and lateral column first, and then the end with the hook shall be connected with lateral column, the other end thereof shall be fastened with the king tower with the bolts.

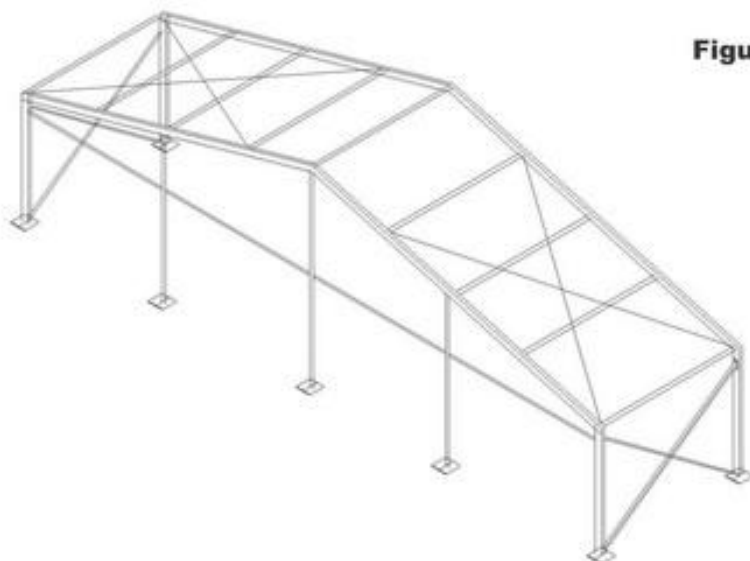


**Figure 14**

## **13. Adjusting the positions of central cylinder and lateral column:**

Based on the actual smoothness of the ground where central cylinder and lateral column are installed, adjusting the height thereof, so as to keep good contact with the ground. Also, central cylinder and lateral column shall be kept in the state of verticality, Parallelism and smooth, and then fastening could be achieved via drilling the bottom outlet of expansion bolt.

## **14. Pretension of cable wire: subject to figure 15**

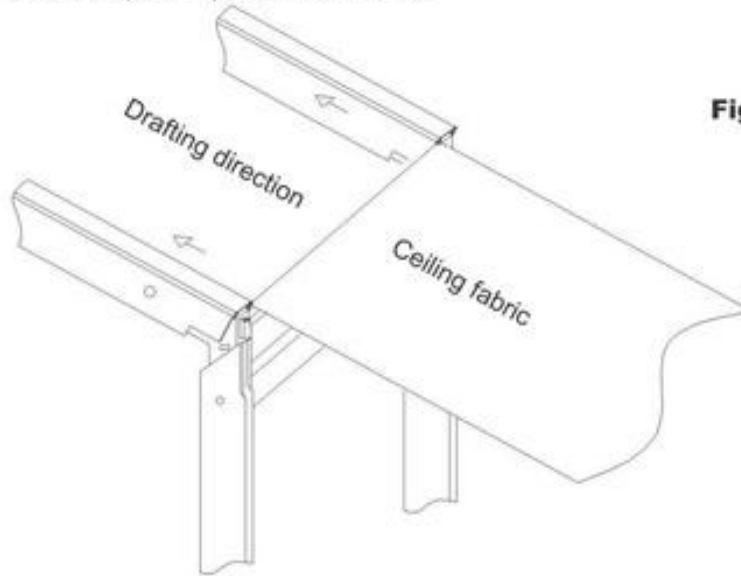


**Figure 15**



## 15. Ceiling fabric

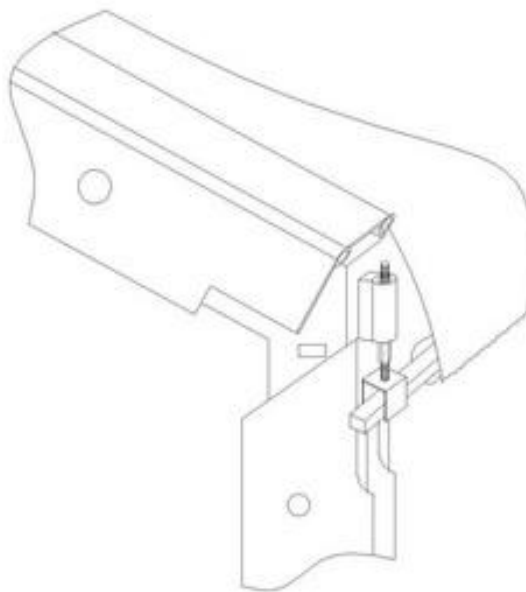
As per figure XVI, tent fabric strips shall be inserted into the relevant shaped orifices of tapered beam from the same direction respectively, and such tent fabric strips shall also be tugged from the other way around, so as to keep the impartial at both sides.



**Figure 16**

## 16. Ceiling Stretching rod

As per figure 17, Pretension via tensile screw rod.

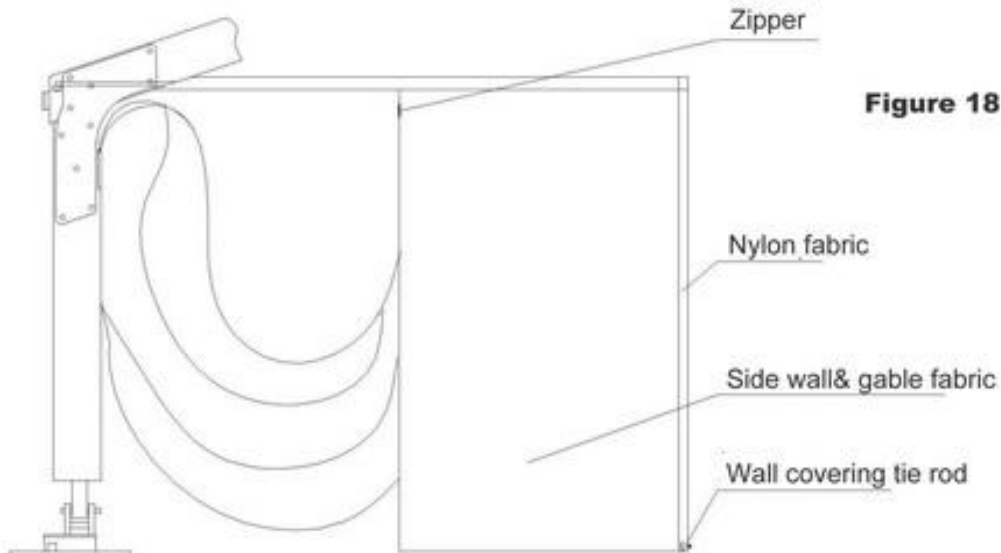


**Figure 17**



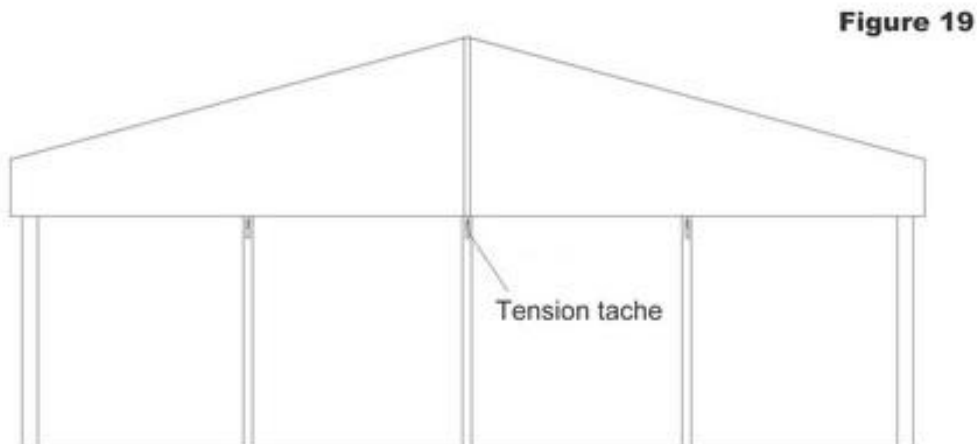
### **17. Putting up the side wall fabric, gable fabric and installing the stretching rod**

As per figure 18, the t-shaped taches of the wall covering shall be inserted into the caulking groove of the periphery hanging pipe, and then string of the ceiling fabric should be inserted into the single v-groove v of king tower; the lower part of wall covering shall be fixed by the tie rod.



### **18. Putting the gable gore and installing the tie rod**

As per figure 19, gore string is inserted into the single v-groove v related to the tapered beam and pulled to the central column, and then triangle tent fabric strip shall be connected via the shaped orifices of tent triangle connecting rod. Finally, tie rod shall be pre-tensed by the tension tache.





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## **IX. Tent use and maintenance**

Tent's usage is determined by its overall structure materials. As a makeshift, usage thereof shall take following conditions into account:

- (1) Main body of the tent adopts aluminum product, steel products and PVC reinforced tent fabric. Therefore, the tent shall be free of high concentration acid, alkalinity substance, corrosive gas & materials.
- (2) Never use high assay acid and alkali to clean the aluminum-alloy construction. In that case, the surface thereof may be eroded.
- (3) Although, PVC tent fabric is subject to the state fire protection standards, it is still the combustible substance. So, PVC tent fabric shall be kept 100 m away from the flammability and high explosive cargos.
- (4) As using the tent, it shall be free of sharp, inflammable and explosive substances, so as to avoid the damage of tent.
- (5) Tent fabric cleaning could adopt slightly alkaline detergent. Never use the sharp substance to wipe the fabric excessively, so as to avoid the damage. In case small damage is found, 502 gum can be used to bond the breakage. Also wax maintenance shall be carried out from time to time based on the frequency of use.
- (6) Never remove the tent components or change the existing structure thereof at your own sweet will, or the overall safety of the tent will be lowered, so as to cause the accidents.
- (7) Never carry out the unauthorized dismounting of the electrical facilities inside the tent. The electrical equipments inside the tent shall be installed by the authorized professional technicians.
- (8) As the tent is put into use, the roster shall be available.
- (9) The user shall provide the tent with the fire fighting equipment as required.



## X. Emergency treatment

(1) The personnel who are on duty shall be increased in case of rainstorm, heavy snow and sandstorm. Based on the practical situation, the indoor push rod shall be used to raise the ceiling fabric, so as to remove the accumulate water and snows on the ceiling fabric. Also, all of the side walls shall be closed down. In a bid to decrease wind effect on the tent, the traction rope shall be installed, so as to strengthen the tent's wind resistance capability. If such natural disaster is still unable to be solved via the measures as per stated above, the ceiling fabric and side wall fabric shall be disassembled immediately.

(2) In case of force majeure such as earthquake and flood, etc., the client shall increase the number of the personnel who are on duty and pay close attention to the development of the natural disaster. If necessary, the tent shall be demolished immediately and the power shall be cut off so as to lower the damage to the minimum limit.

(3) If failing to tackle such disruptive events as per stated above, the power shall be immediately cut off. Also, the evacuation shall be conducted so as to avoid the unnecessary casualties.

Technology & Quality Dept.

May 7, 2007