

The windmill

The first idea of using windmills came from the *Katse* people. The design of wheels tied on a tower's corners appeared as early as year 550. However, the windmill as we know it today appeared in Europe only after 1180. By the end of the 13th century, these windmills were used to grind crops and to pump water. In order to store up as much energy as necessary, windmills had to be large. Placed on high and connected to a swivelling structure that would direct them in the wind's direction.

Le moulin à vent

Les premiers moulins à vent ont été construits par les *Katse* au Tibet. Les roues éoliennes sur un socle de tour furent inventées dès l'an 550. Toutefois, le moulin à vent tel que nous le connaissons aujourd'hui ne fut inventé qu'au début du 12^{ème} siècle. À cette époque, ces moulins à vent servaient à moudre les céréales et à pomper l'eau. Afin d'emmagasiner l'énergie nécessaire, les moulins devaient être très grands. Placés sur des hauteurs et reliés à une structure pivotante permettant de les orienter dans la direction du vent.

El molino de viento

Los primeros molinos en los que aparecen molinos de viento son los de China. El molino antiguo con sus ruedas horizontales en la cima de una torre había existido desde el año 550. Sin embargo, la forma que conocemos en la actualidad no apareció en Europa hasta el año 1180. Hasta principios del siglo XX, se utilizaban los molinos de viento para moler las cereales y bombear el agua. Para captar la energía necesaria, los molinos tenían que ser grandes y colocados en lo alto de una estructura giratoria que permitiera orientarlos hacia el viento.

Il mulino a vento

I primi molini che hanno conosciuto il mulino a vento giungono dal mondo indiano. L'origine di questo tipo di mulino, orizzontalmente in cima alla torre, risale al 550. Ma la forma che conosciamo non apparve in Europa in Europa soltanto verso il 1180. Fino all'inizio del secolo XX, questi mulini a vento servivano a macinare le cereali e a pompare l'acqua. Per poter massimizzare l'uso dell'energia, le ali dovevano essere grandi, piazzate su un piedistallo elevato e fissato a una struttura girante che permettesse di orientarli nella direzione del vento.

Windmühle

Erste Berichte über Windmühlen stammen aus dem antiken Indien. Bereits im Jahre 550 soll es Windmühlen gegeben haben, die sich durch Segel über einer vertikalen Achse drehten. Die uns bekannte Form kam jedoch erst gegen 1180 in Europa an. Bis zum Anfang des 20. Jahrhunderts wurden mit Windmühlen Getreide gemahlen und Wasser gepumpt. Für eine optimale Nutzung der verfügbaren Leistungsmenge wurden die Mühlen über grosse, nach Zugelände und in nach Westwindrichtung ausrichtbare Flügel angeordnet.

De windmolen

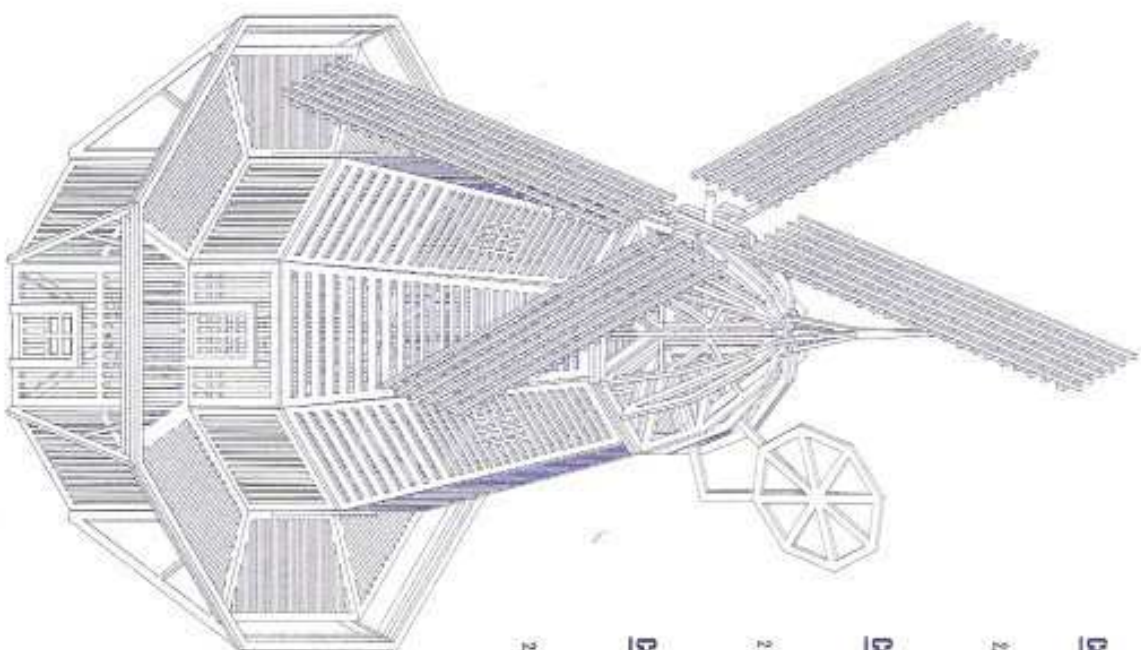
De eerste verhalen waarin windmolens worden vermeld, komen uit India. Het ontwerp met vlieën op de top van een toren bestond reeds in 550. Het type windmolen dat we vandaag kennen werd in Europa geïntroduceerd pas na 1180. Het werd gebruikt om te malen en om water te pompen. Om zoveel mogelijk energie te behouden moesten de molens groot zijn, den hoogste van de grond. Bovendien en verbleven zij met een draaibaar systeem waarmee de molens in de richting van de wind konden worden gericht.

風車

風車に関する初めての物語はインド世界に由来します。風の頂上に架えられた車輪は550年頃から存在していた。しかしながら、今日の風車になっているのは1180年頃ヨーロッパで出現したもので、20世紀初めまで、これらの風車は穀物を挽いたり、水をくみ上げたりするために使用されました。必要に応じて、木製または鉄製の大きな翼を回すことによって、風の方向に合わせて向きを変え、風を捕まえることができました。

MATHEMATIC STRUCTURE

PLANS • PLANOS • PIANI • ZEICHNUNGEN • PLANNEN • 設計図



Contents:

- 1 assembly board with clear acetate sheet
- 4 clips
- 1 MICROBEAM cutter
- 2,700 MICROBEAMS (2 1/8"/73 mm)
- 1 wood glue (4 oz./120 ml)
- 1 MICROBEAM measure
- plans
- instructions

Contenuto:

- 1 pannello d'assemblaggio con foglio trasparente
- 4 clip
- 1 taglieri MICROBEAM
- 2.700 MICROBEAMS (53 mm/2 1/8")
- 1 colla a base (120 ml/4 oz)
- 1 righello per MICROBEAMS
- plani
- istruzioni

Contenido:

- 1 tablero de ensamblaje con hoja de acetato transparente
- 4 clips
- 1 cortador MICROBEAM
- 2.700 MICROBEAMS (53 mm/2 1/8")
- 1 pegamento de madera (120 ml/4 oz)
- 1 plan para MICROBEAMS
- planes
- instrucciones

Contenuto:

- 1 tavola d'assemblaggio con foglio in acetato trasparente
- 4 clip
- 1 taglierino per MICROBEAM
- 2.700 MICROBEAM (53 mm/2 1/8")
- 1 colla per legno (120 ml/4 oz)
- 1 righello per MICROBEAM
- plani
- istruzioni

Inhalt:

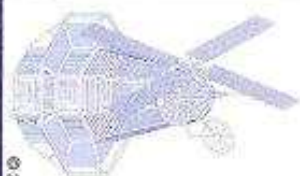
- 1 zusammenbauende mit durchsichtigem Acetatblech
- 4 clip
- 1 MICROBEAM-Schneider
- 2.700 MICROBEAMS (53 mm/2 1/8")
- 1 Holzleim (120 ml/4 oz)
- 1 Raster für die MICROBEAM-Messung
- zeichnungen
- anweisungen

Inhoud:

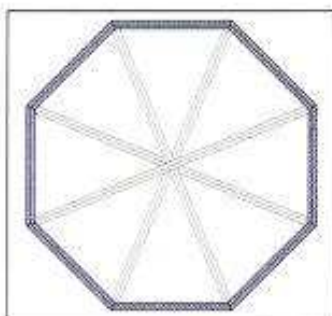
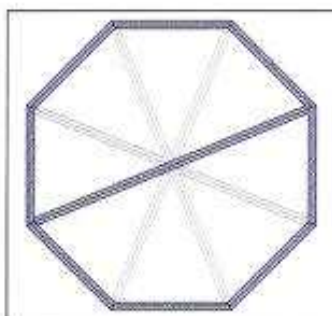
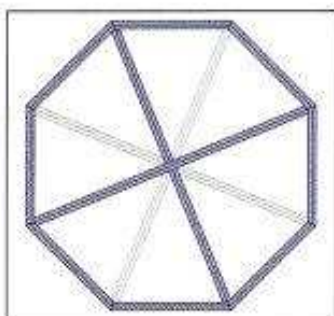
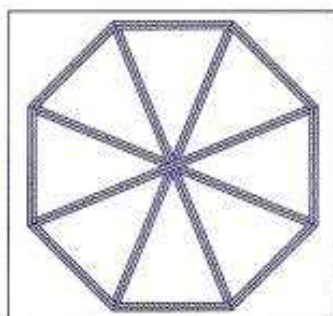
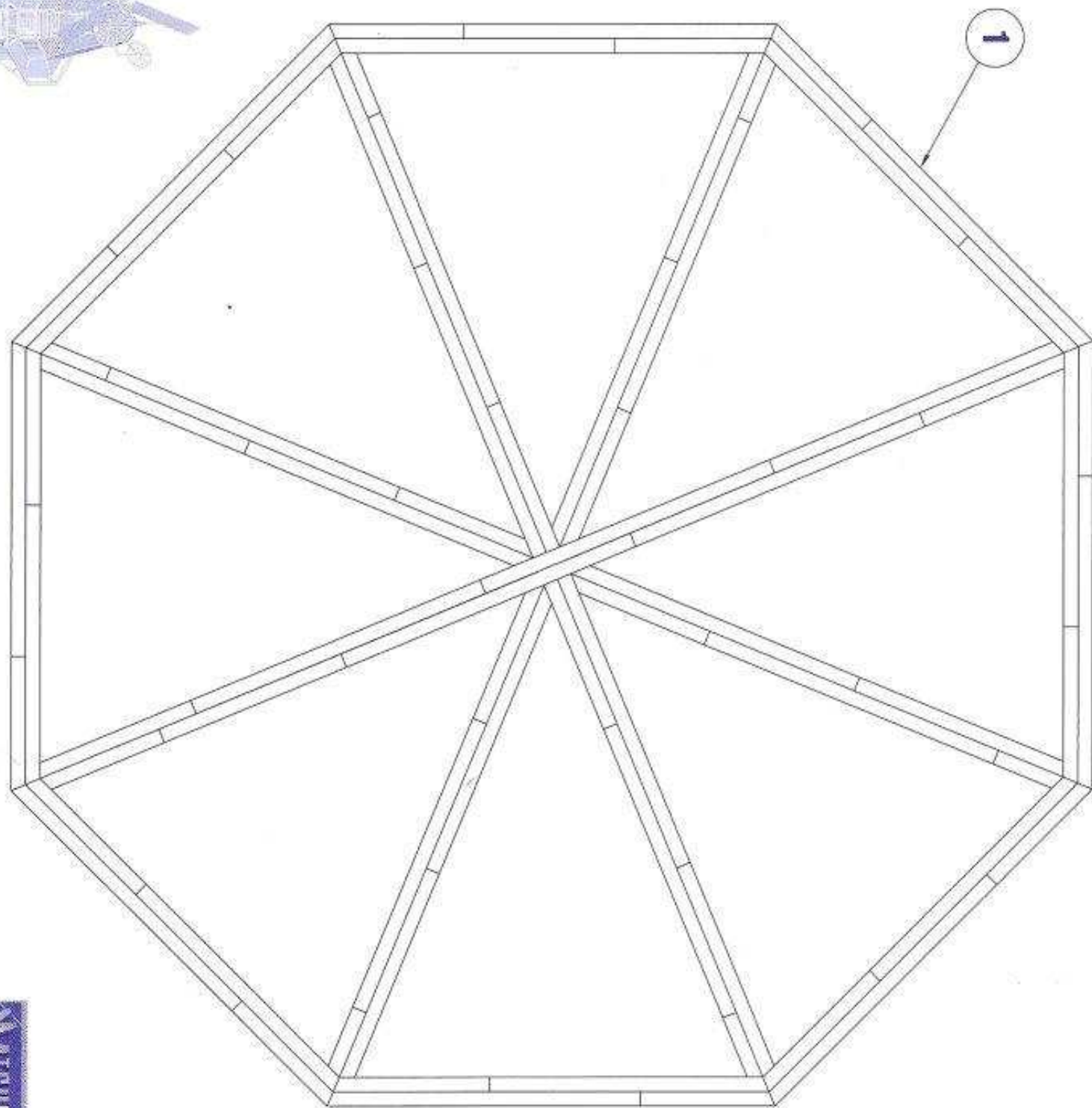
- 1 montagepaneel met transparant blad van acetaat
- 4 klemmen
- 1 snijder voor MICROBEAMS
- 2.700 MICROBEAMS (53 mm/2 1/8")
- 1 lijm (120 ml/4 oz)
- 1 meet voor MICROBEAM
- plannen
- gebruiksaanwijzingen

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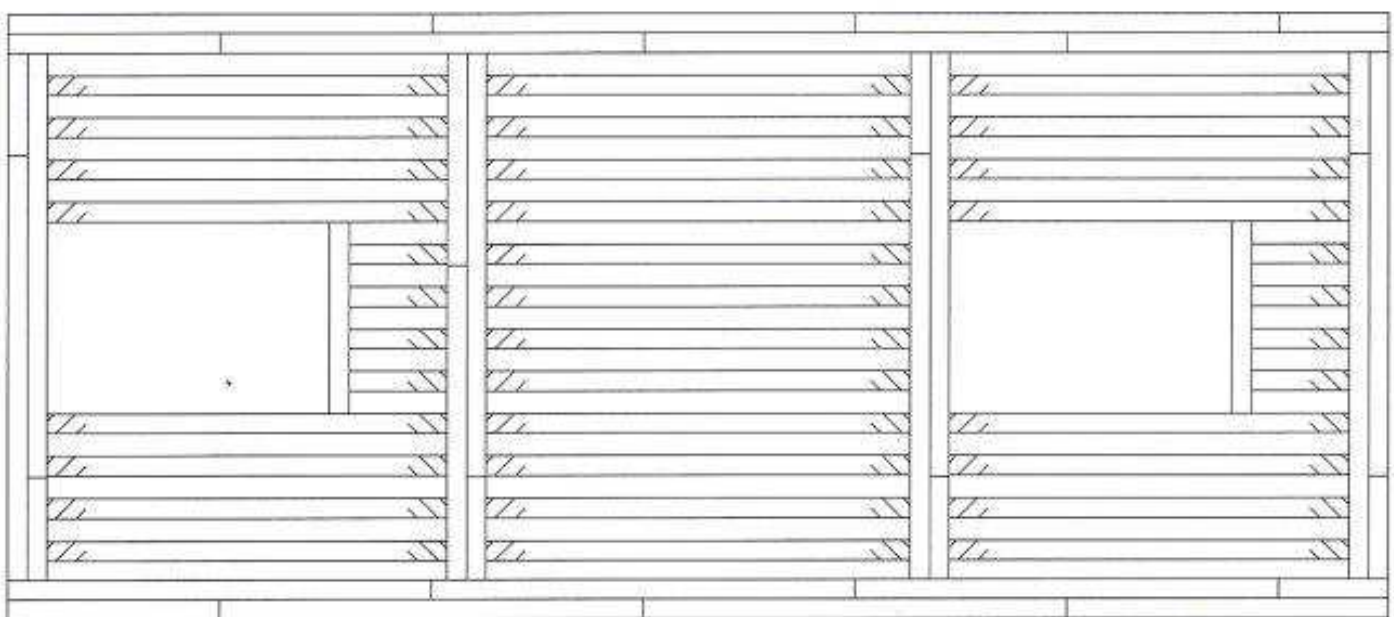
- 1 透明シートと組み立てボード
- 4 クリップ
- 1 マイクロビームカッター
- 2700 マイクロビーム (53mm/2 1/8")
- 1 木工用糊 (120ml/4 oz)
- 1 マイクロビームペンセット
- 設計図
- 使用説明書



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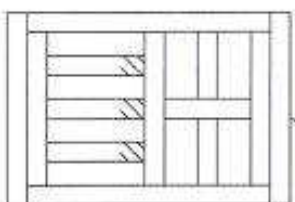


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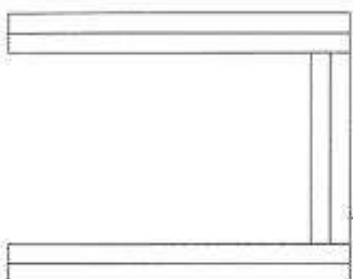
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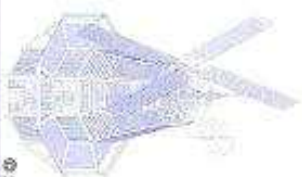
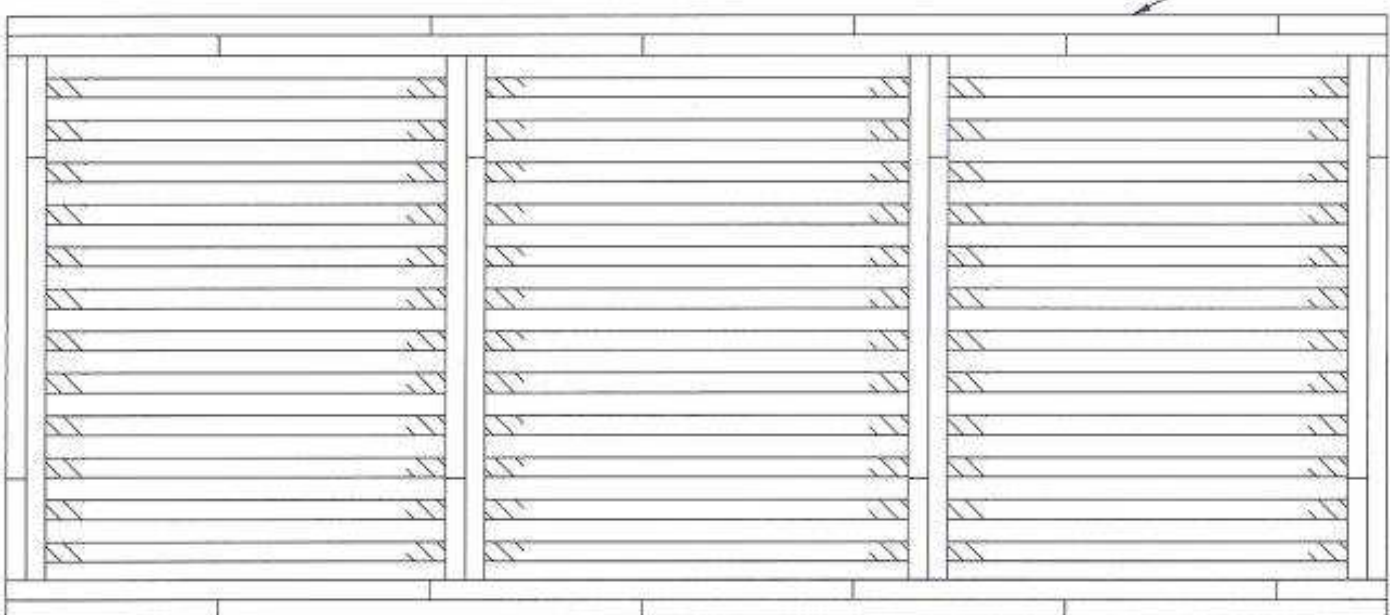
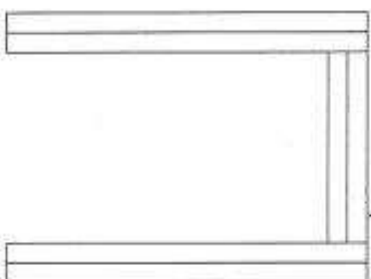


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4x 5



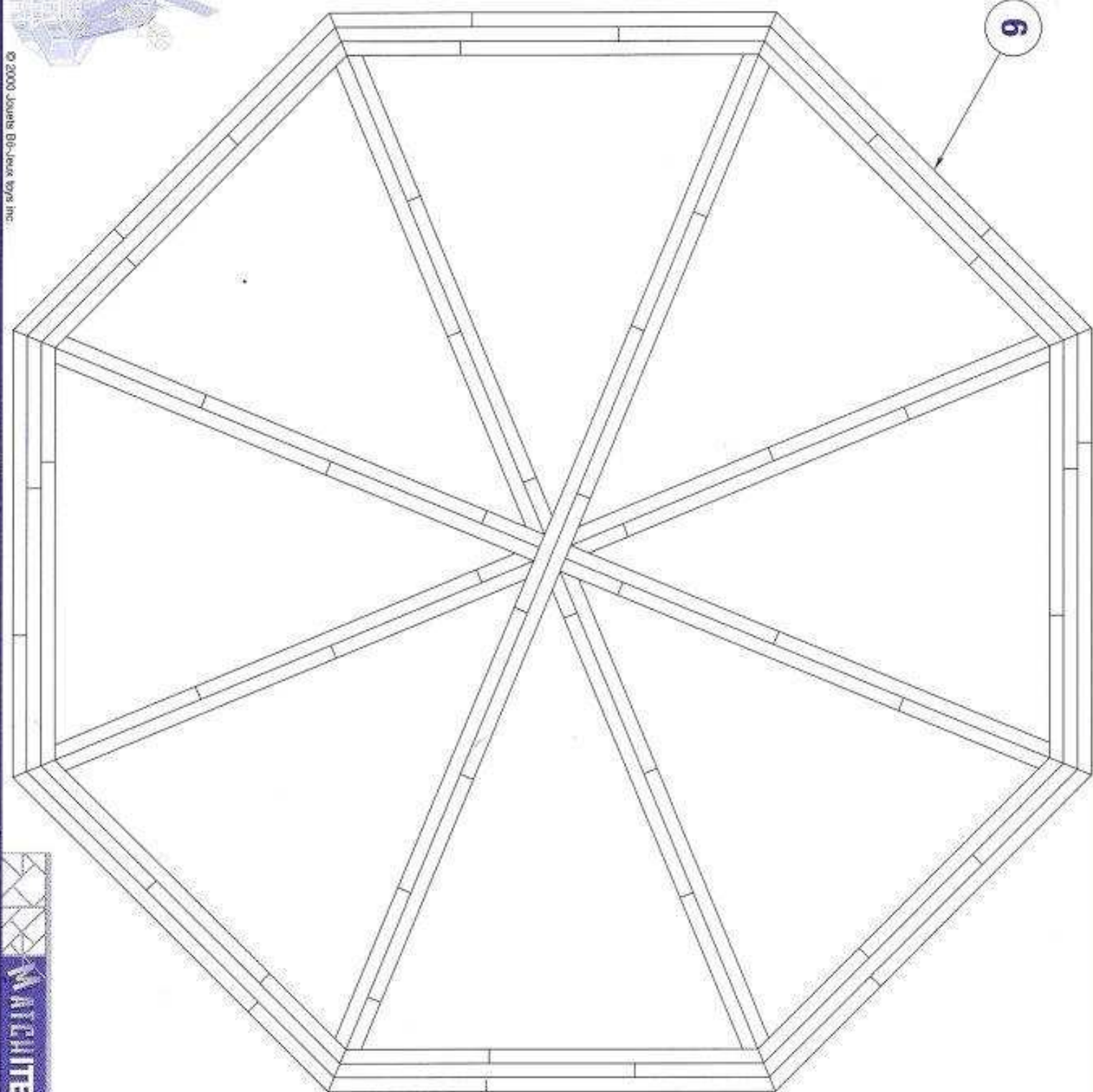
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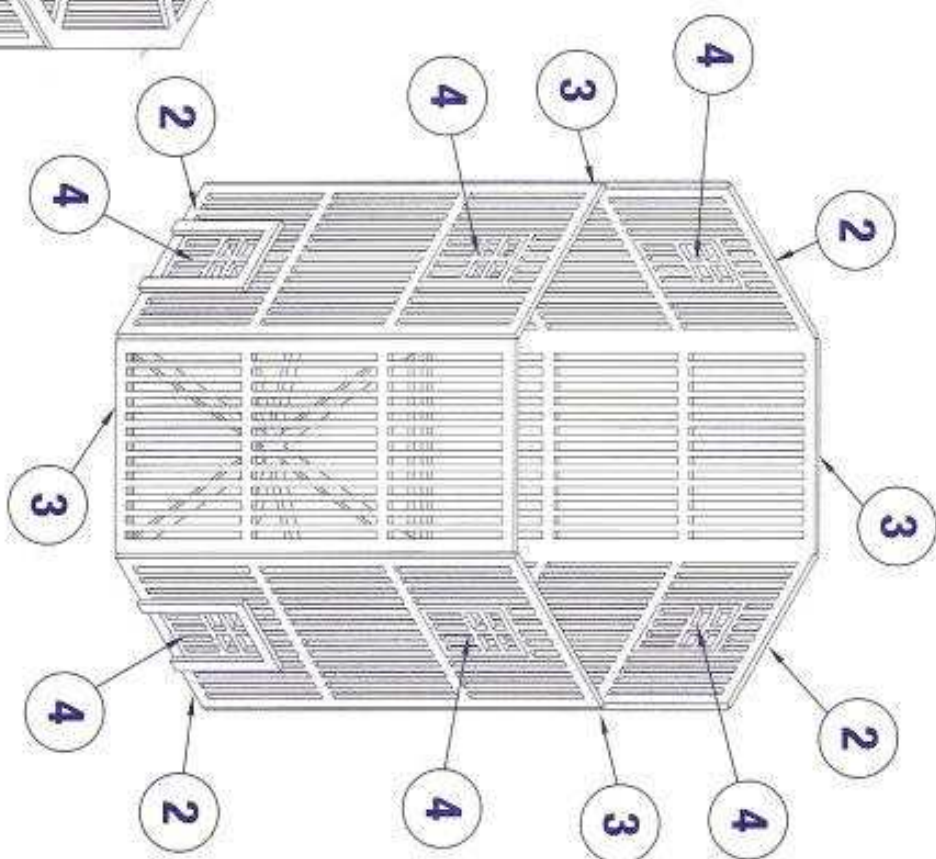
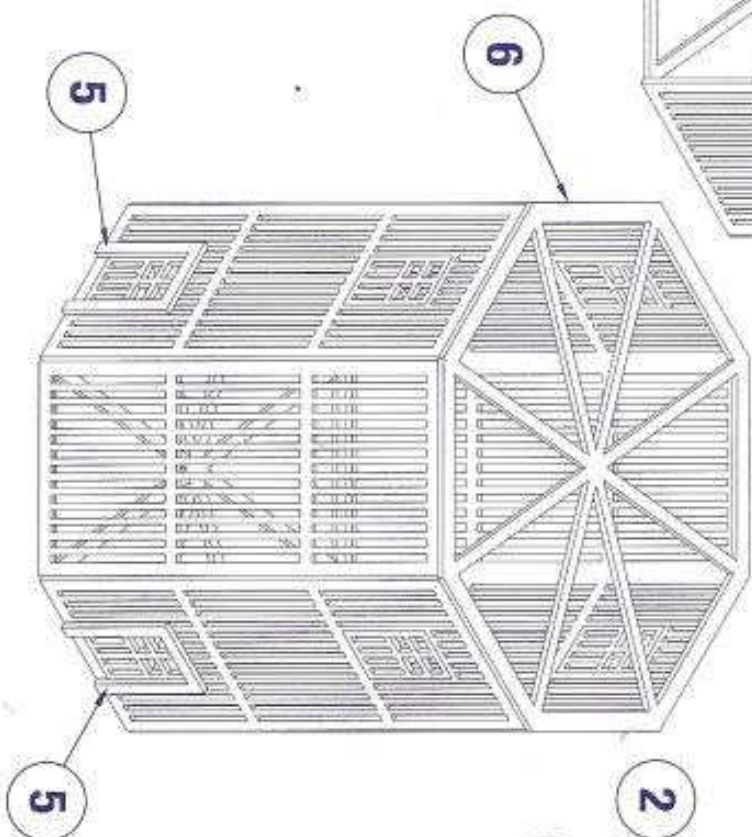
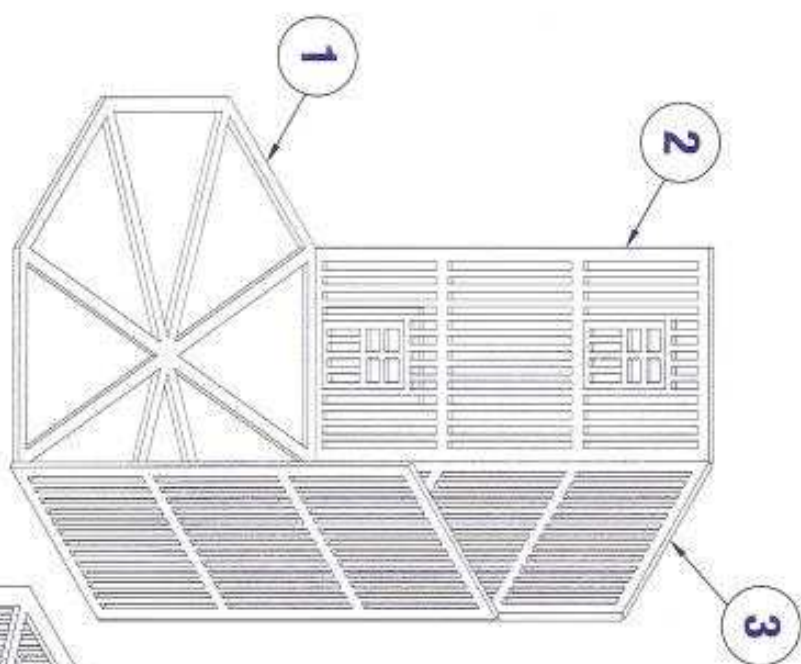
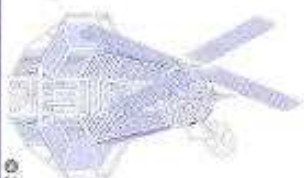
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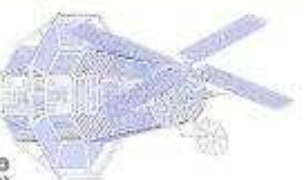
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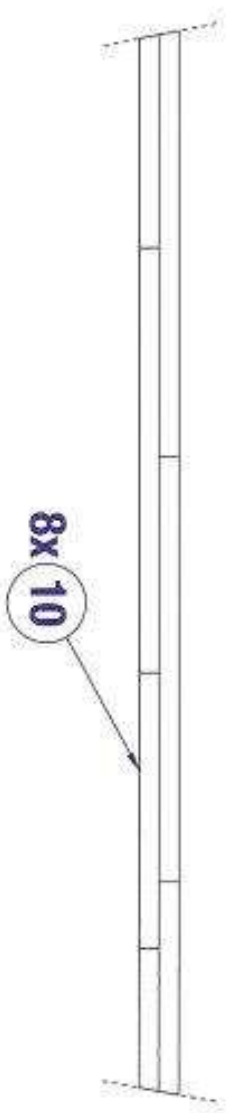
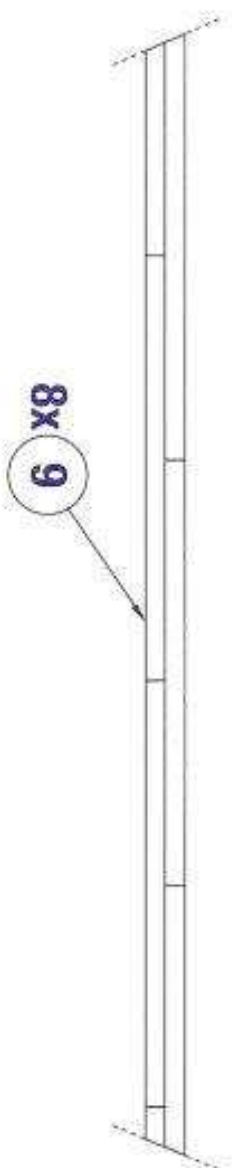
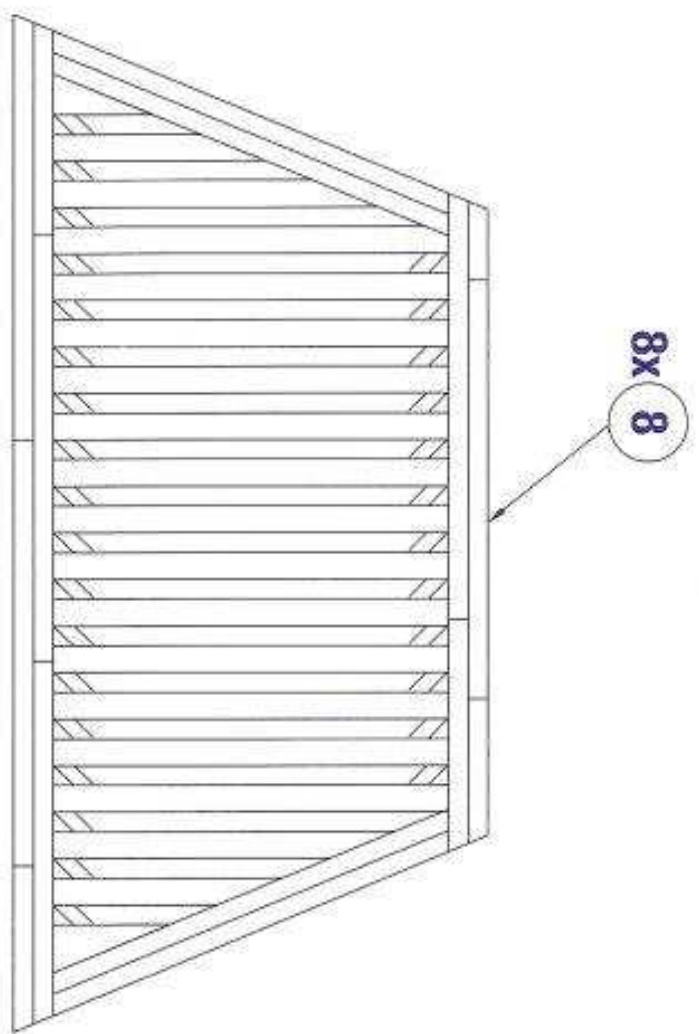
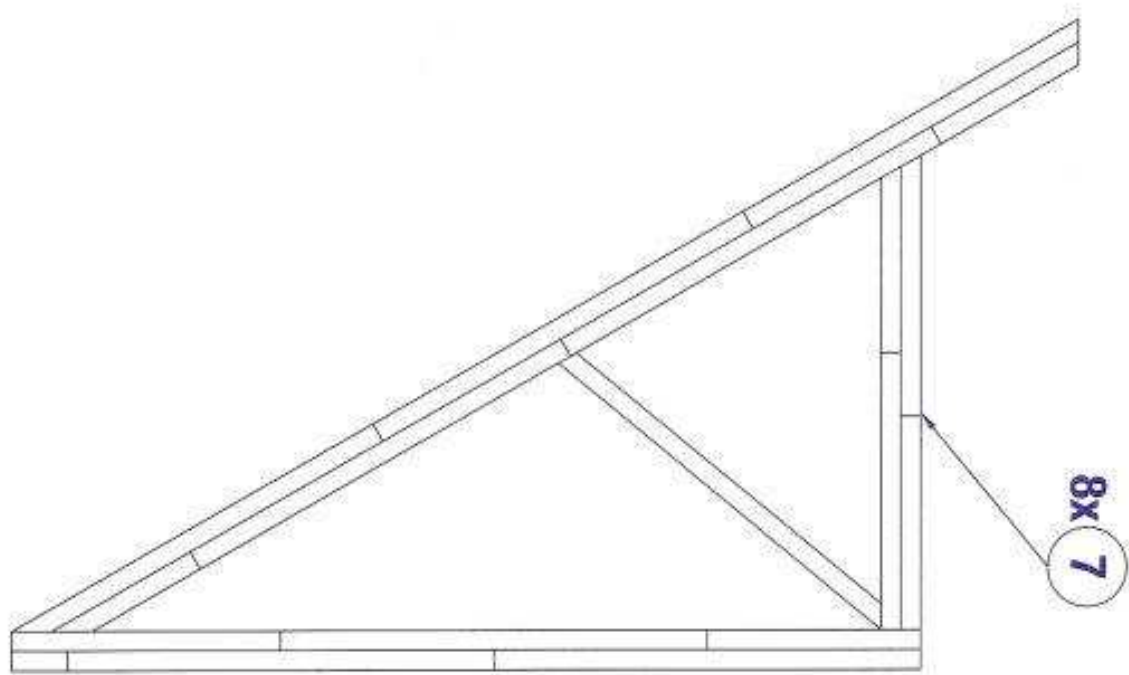
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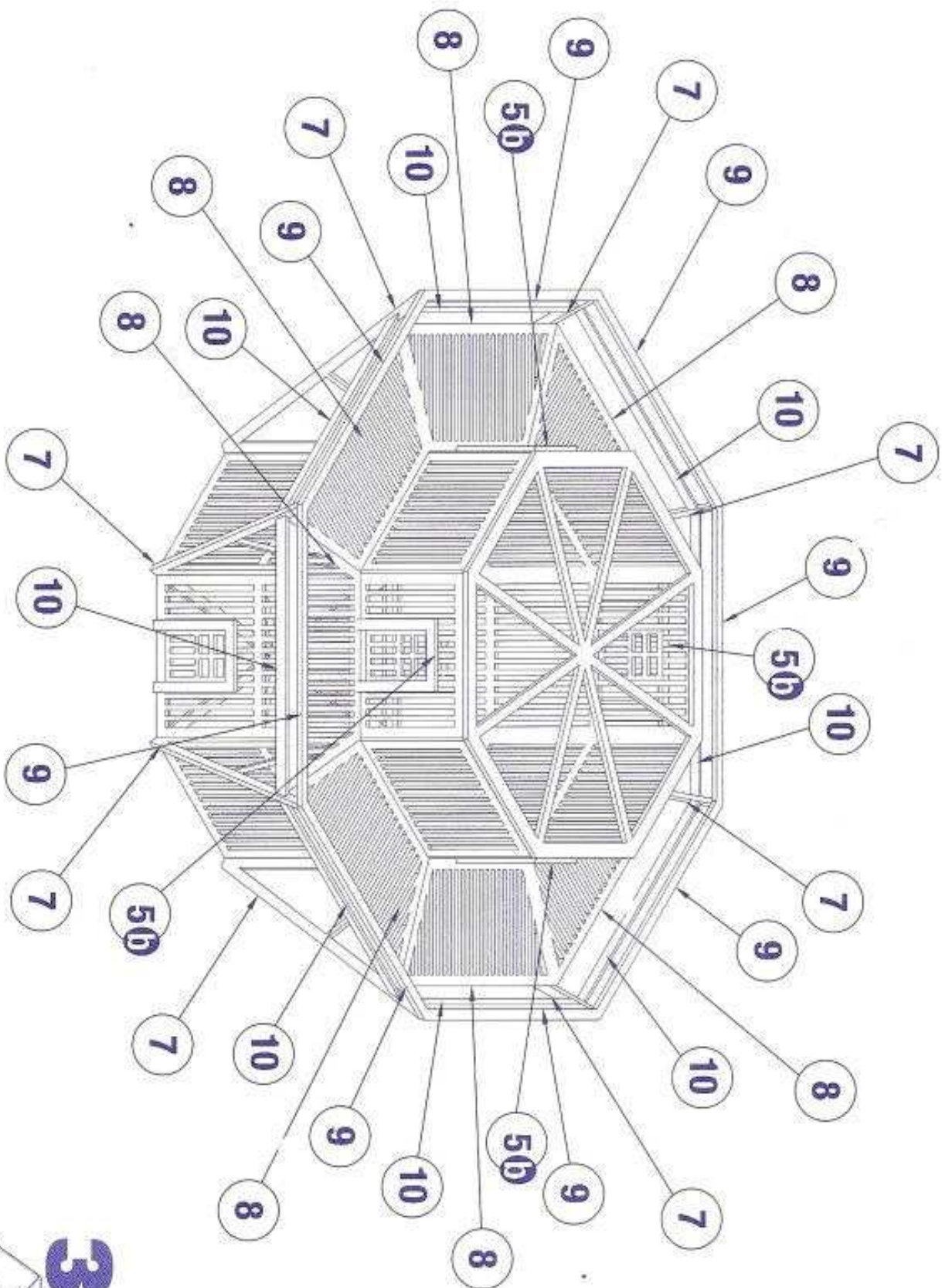
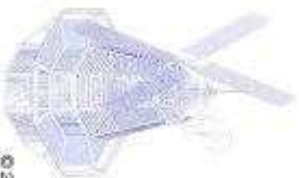
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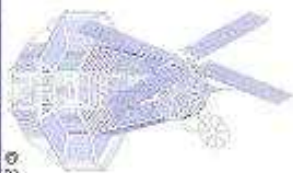




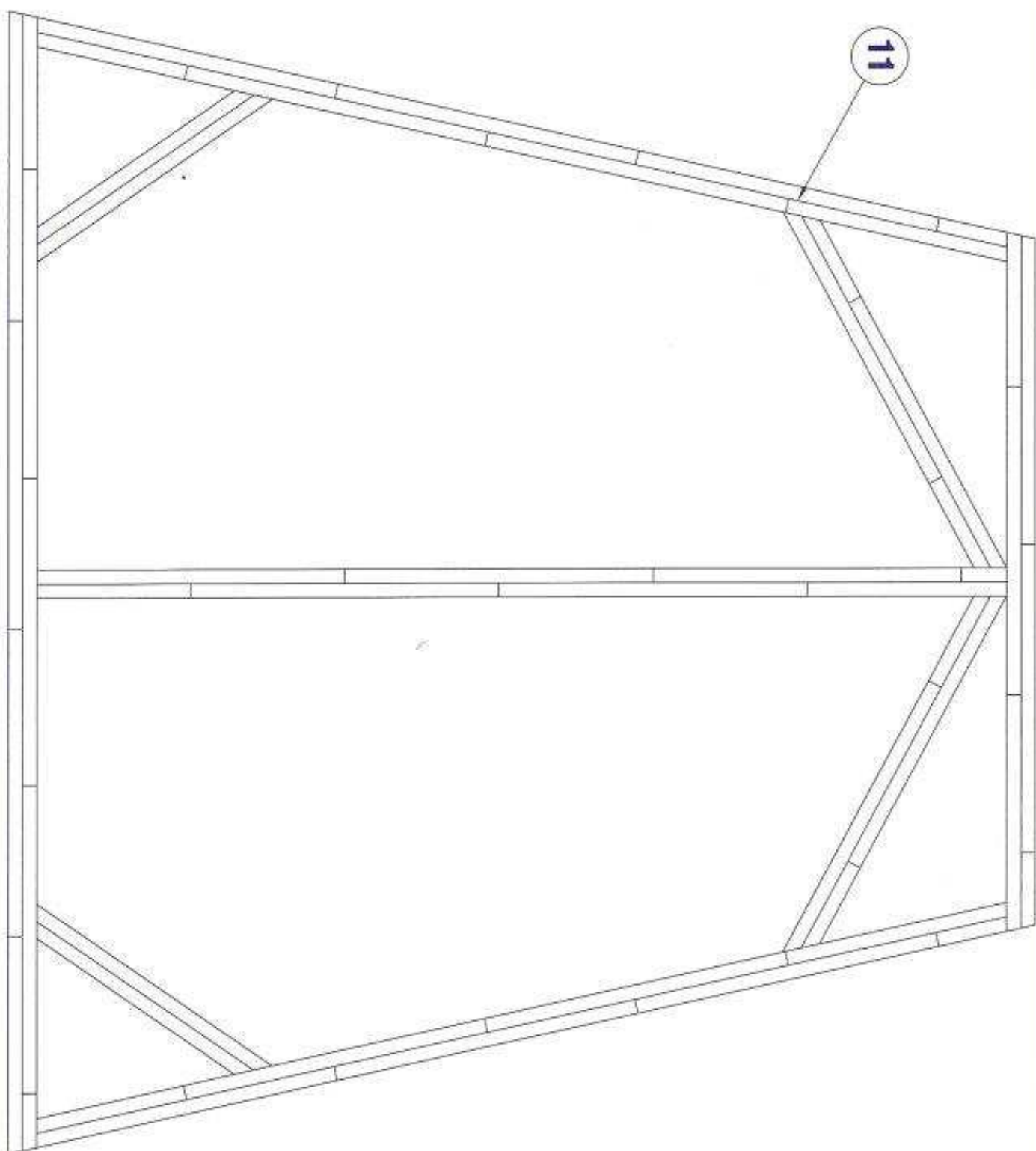
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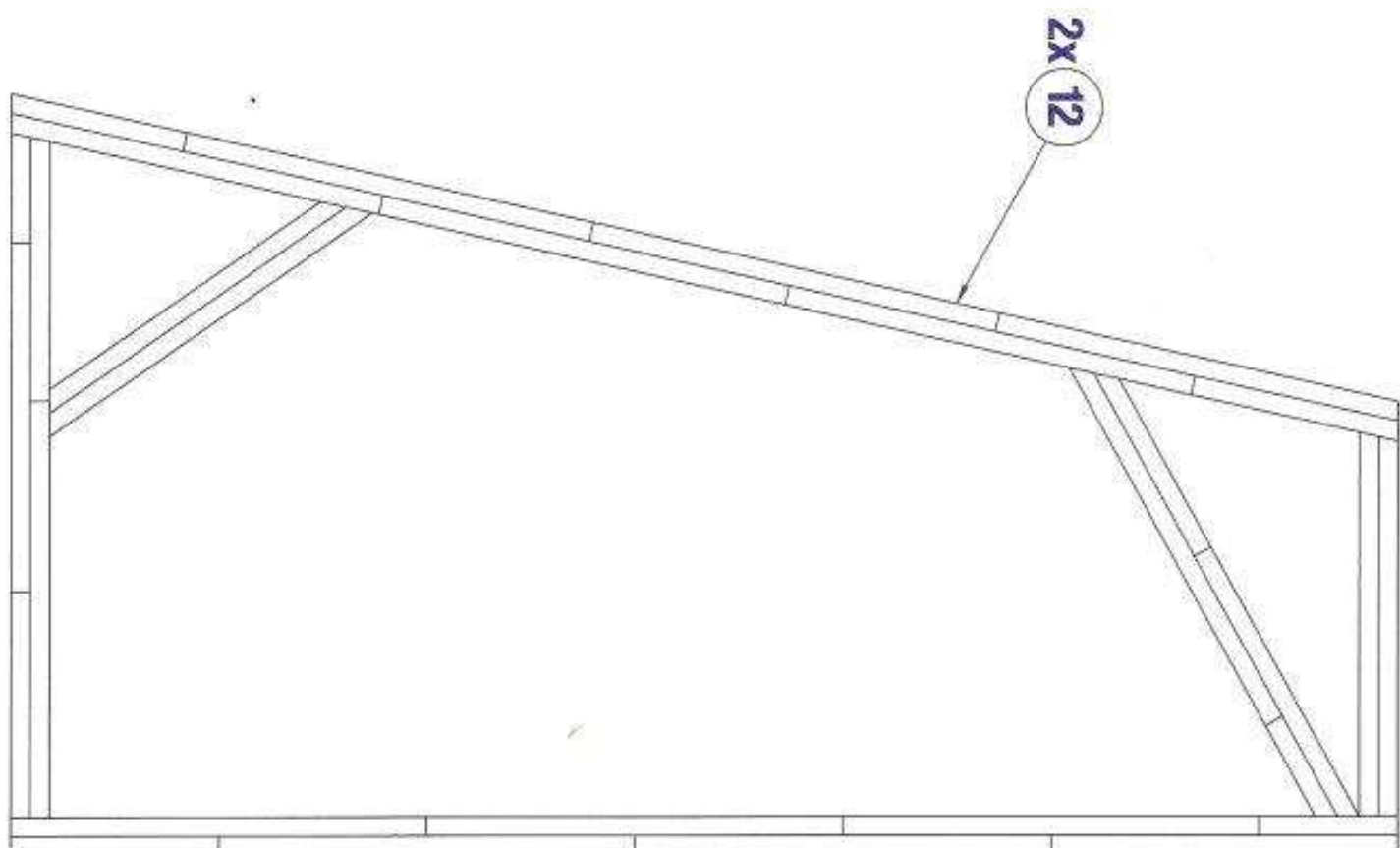
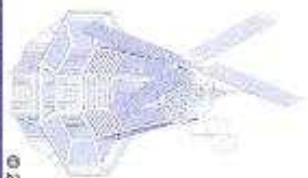


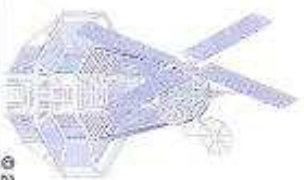


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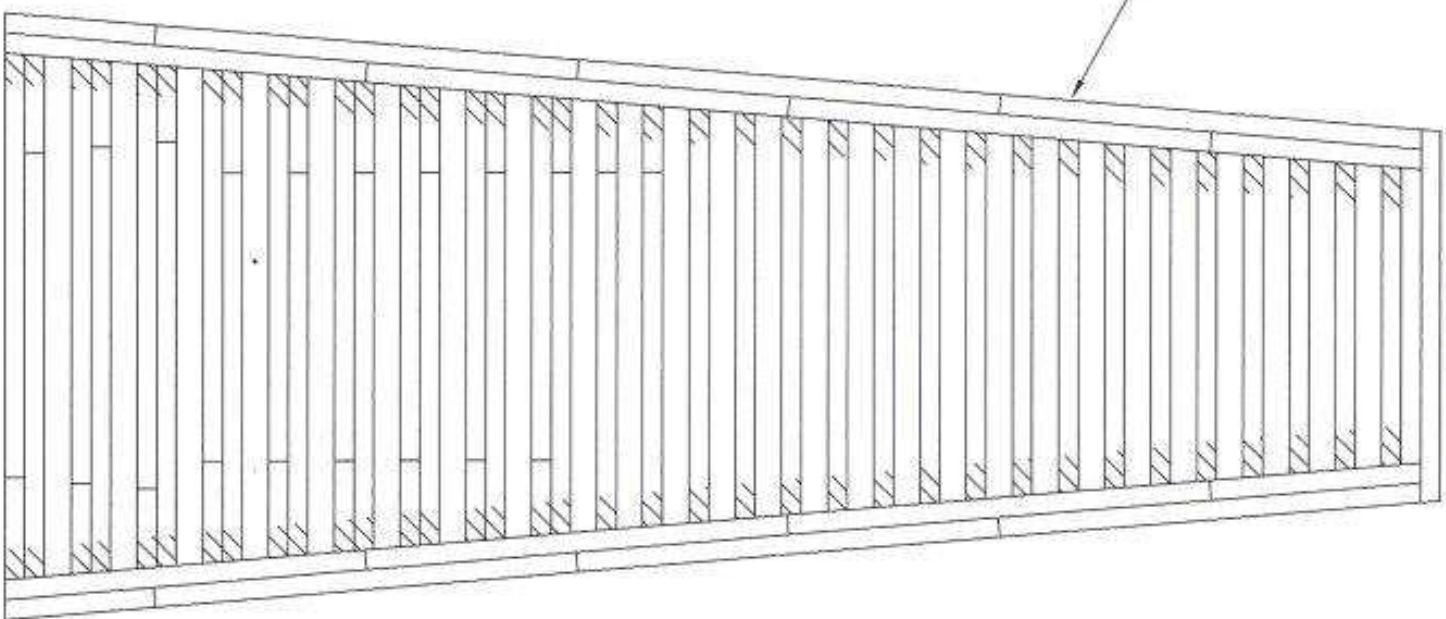


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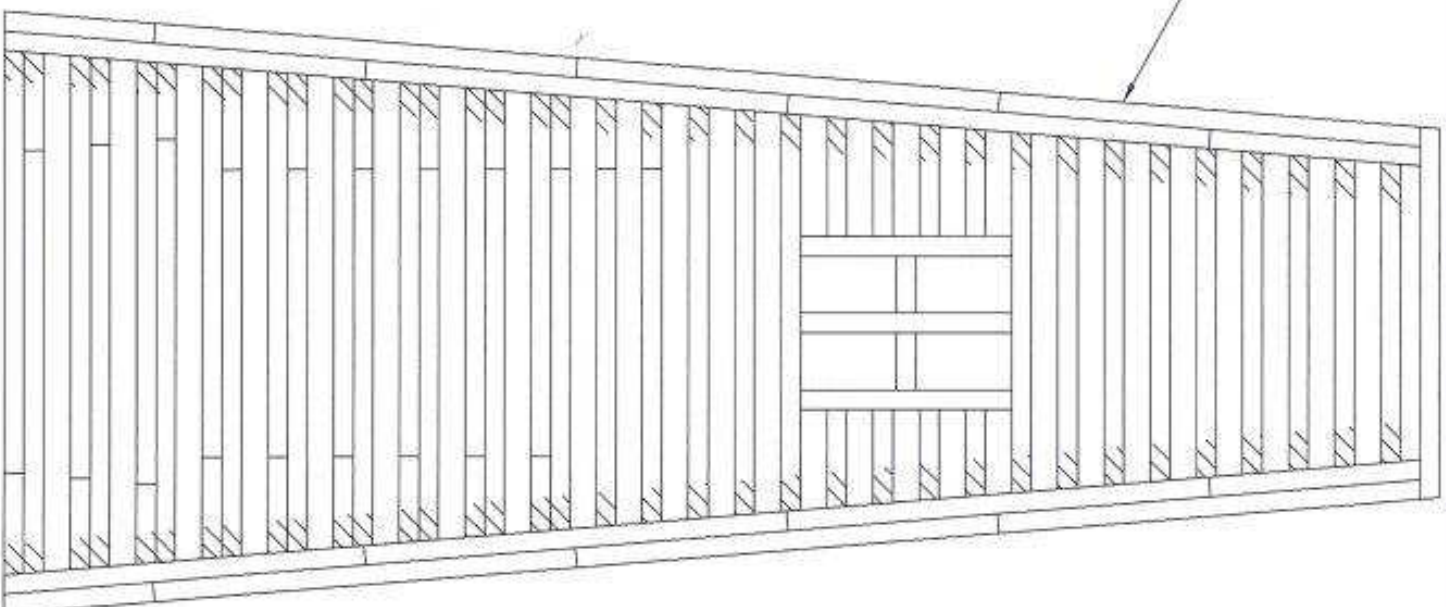


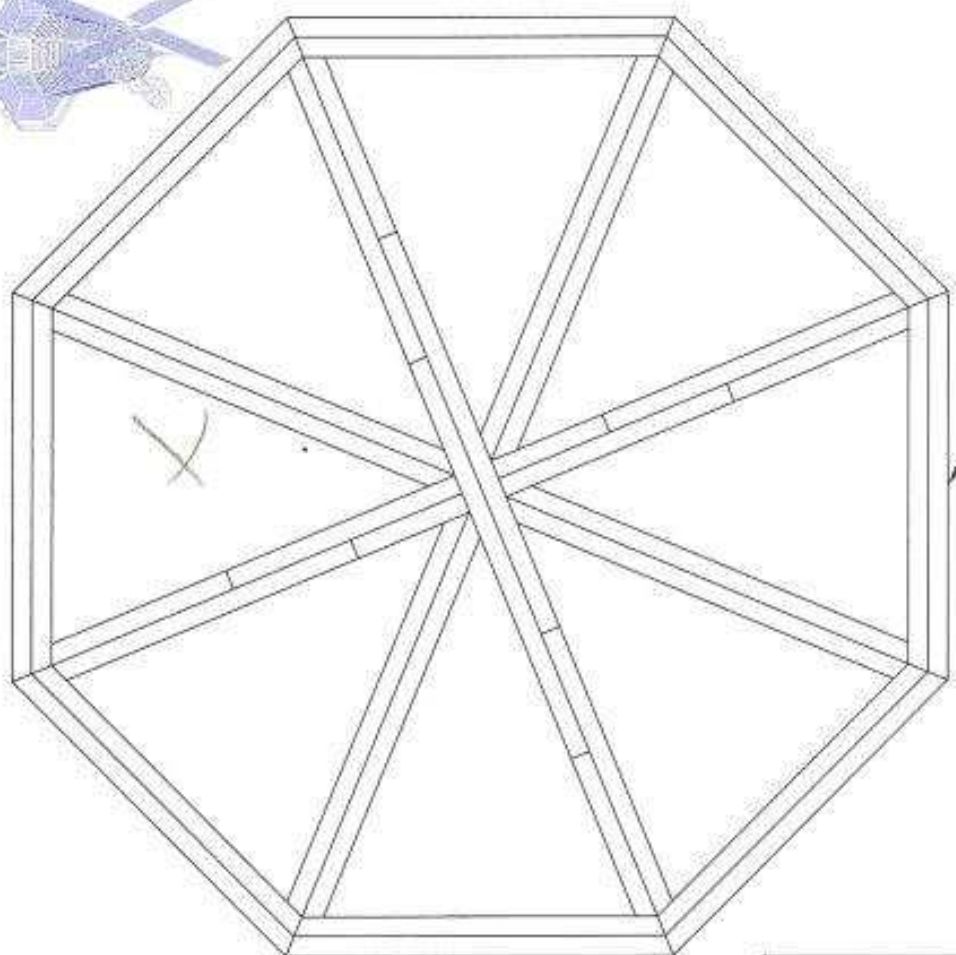


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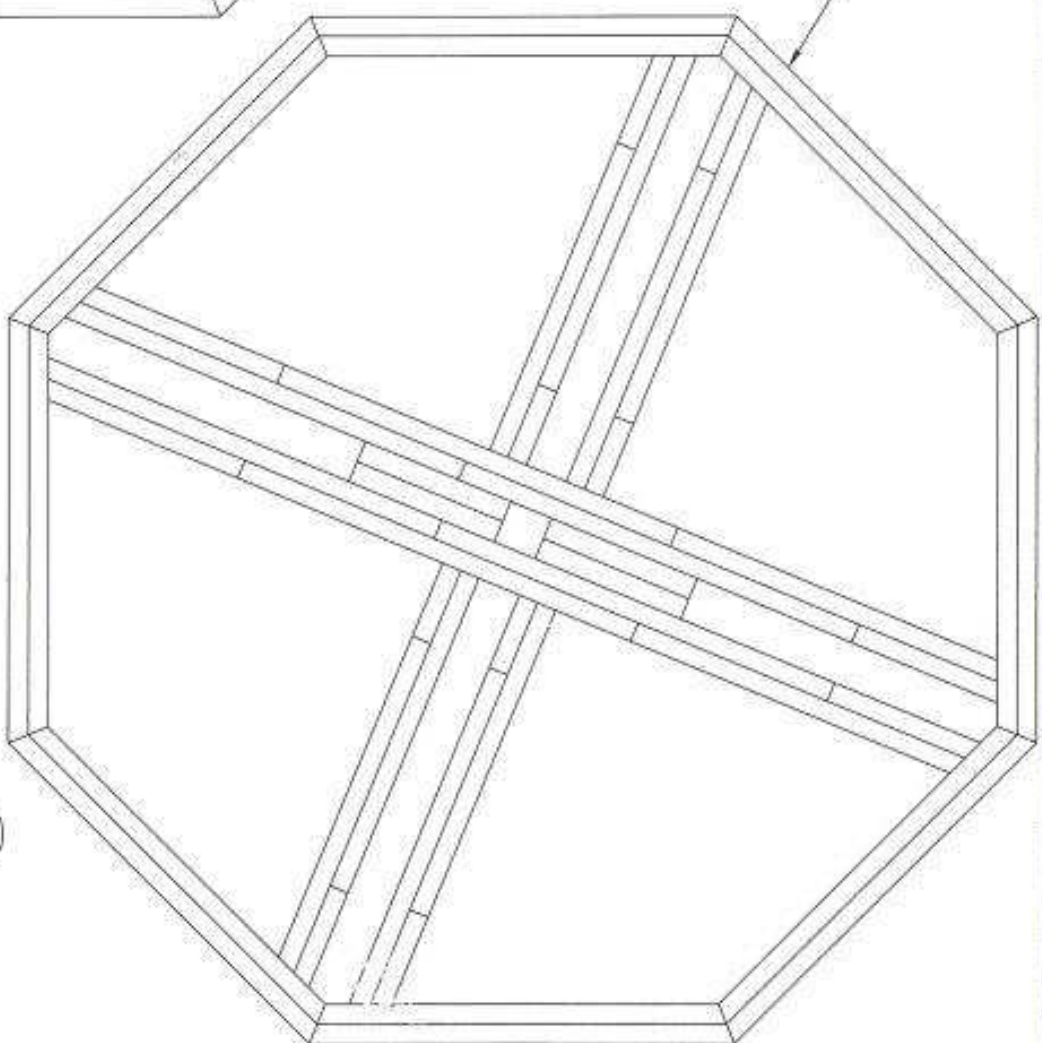
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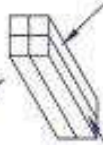
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2x 17



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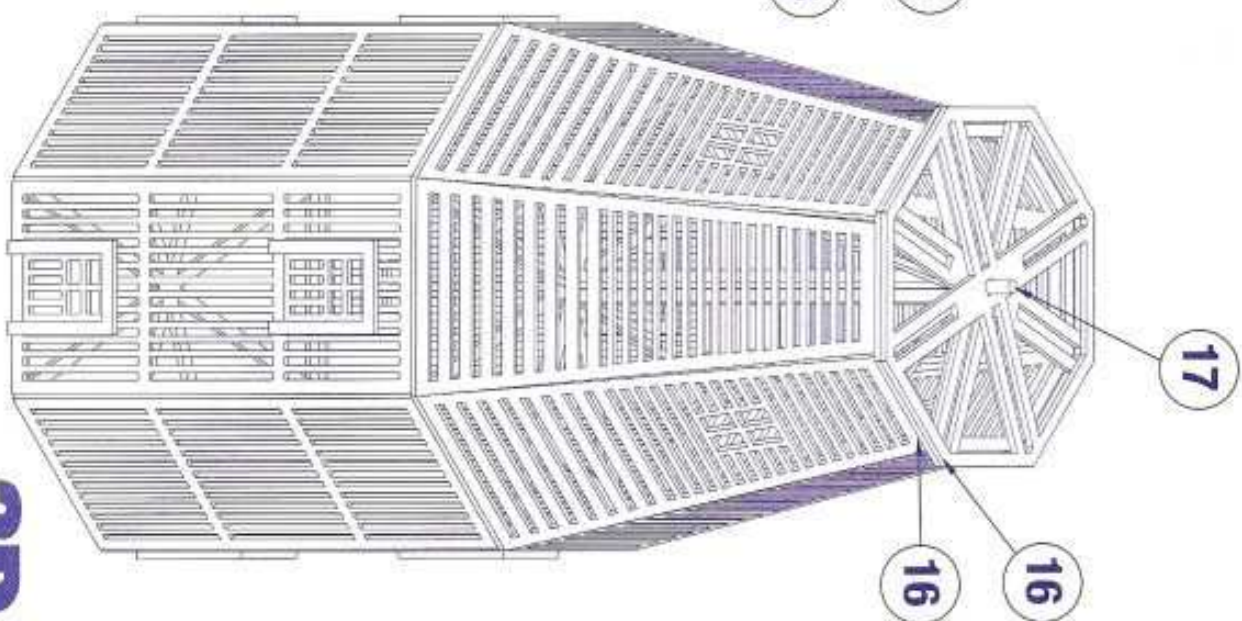
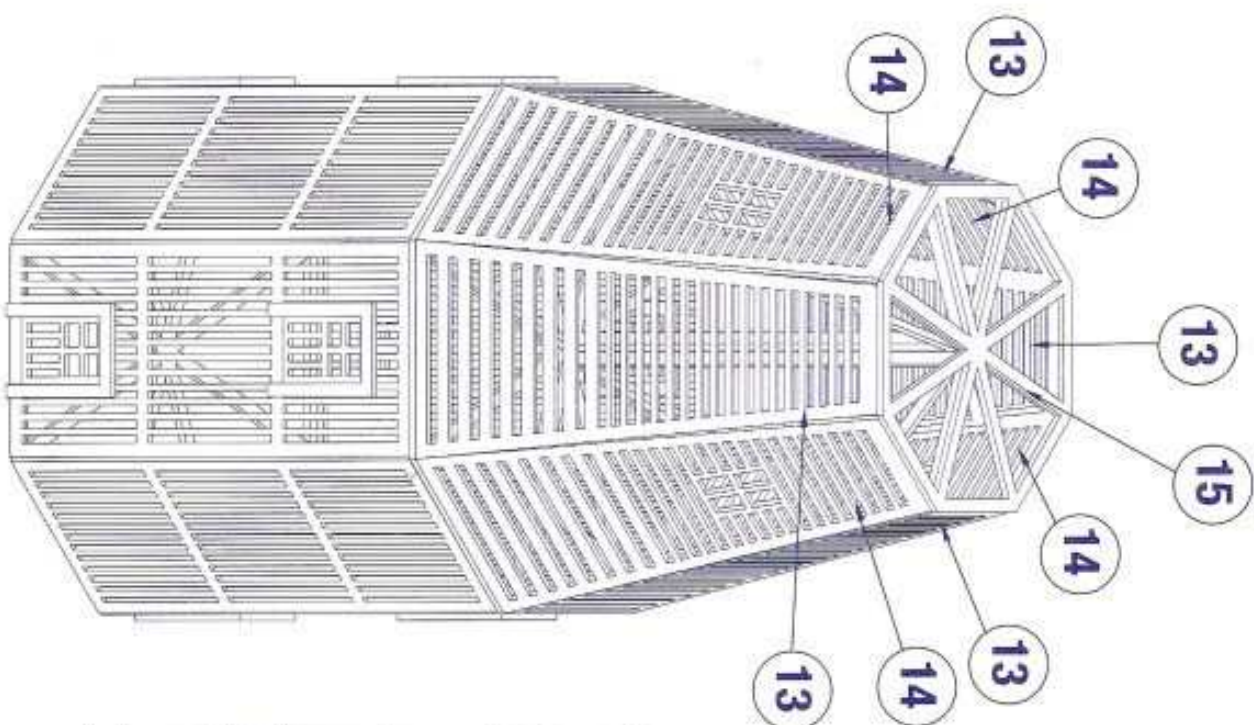
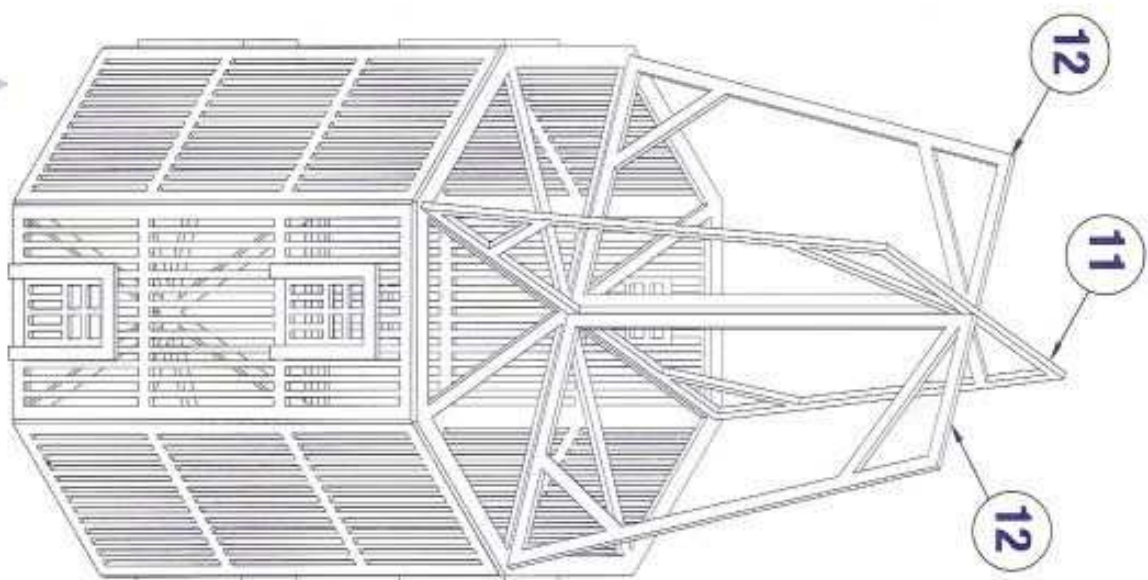


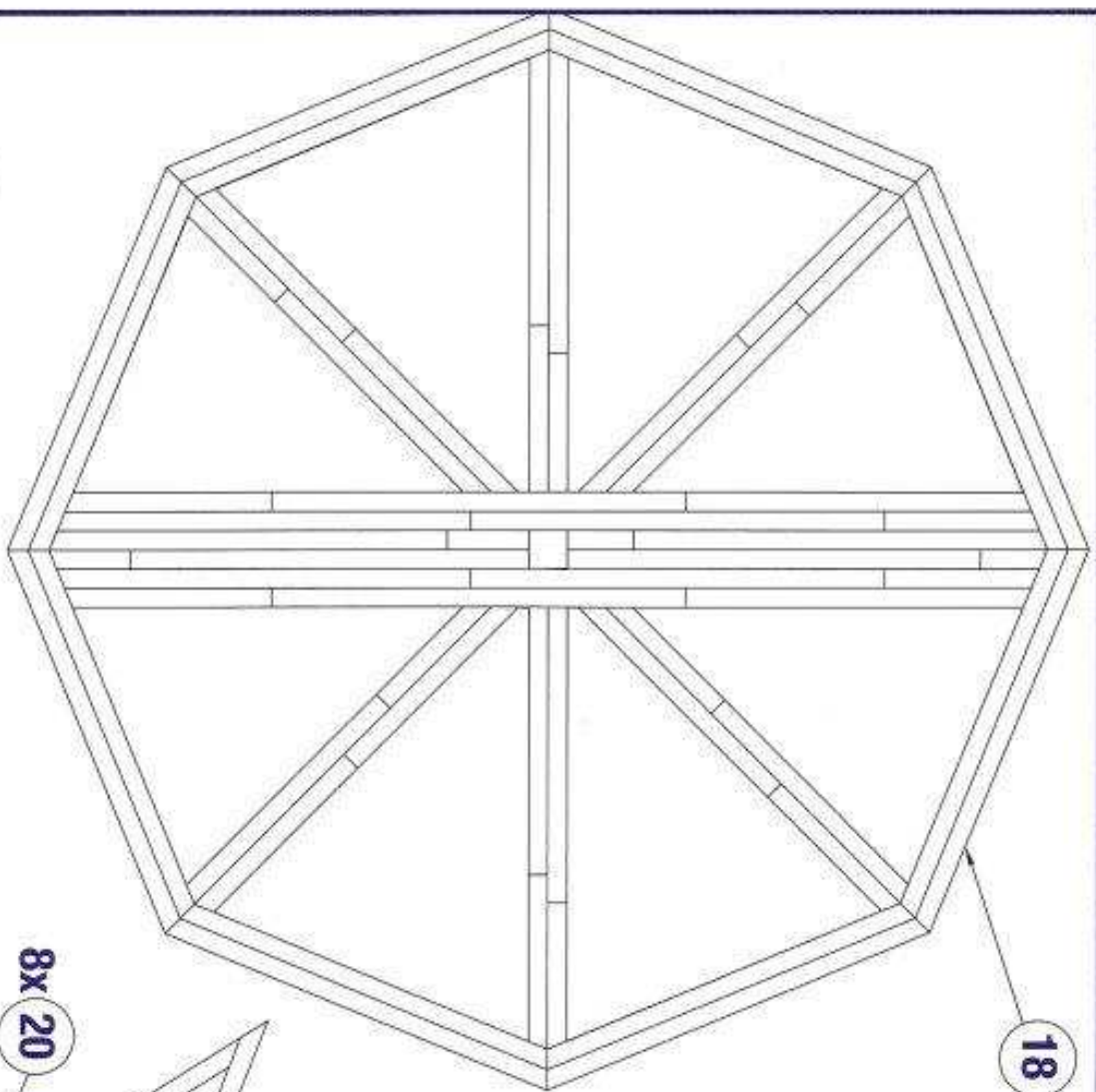
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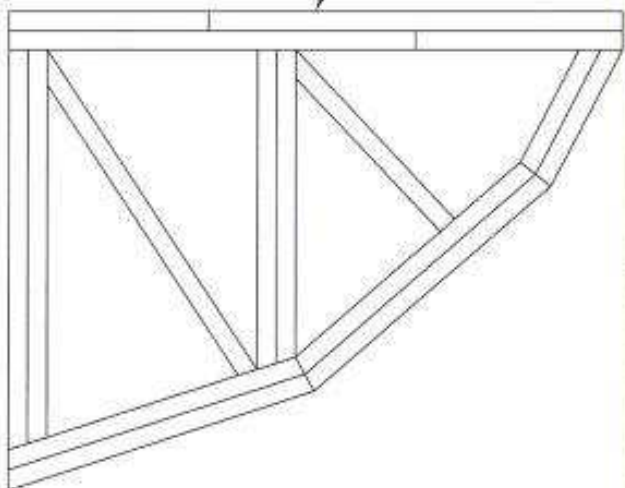




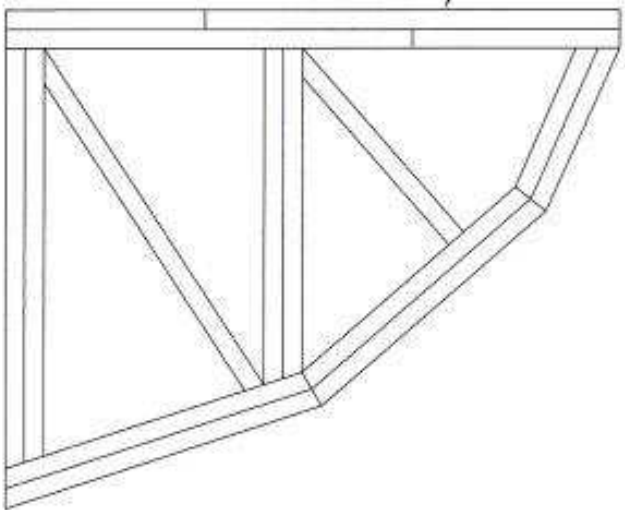


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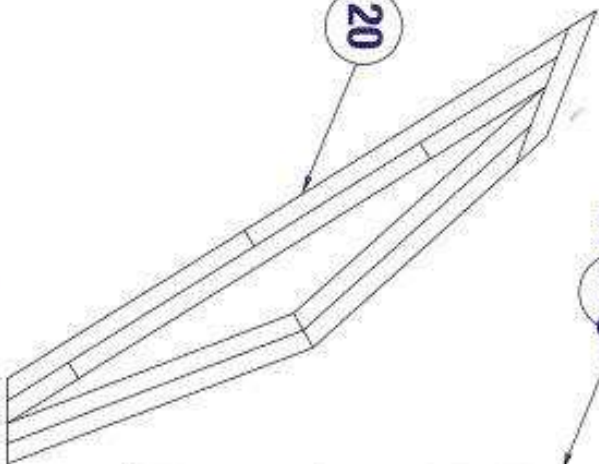
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2x 19



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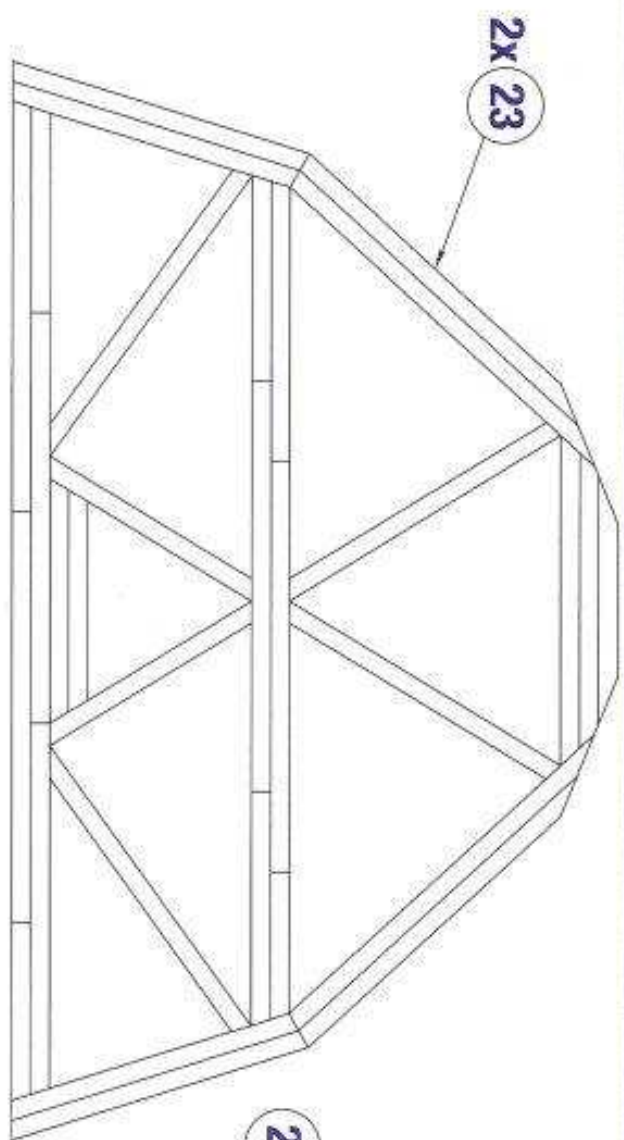


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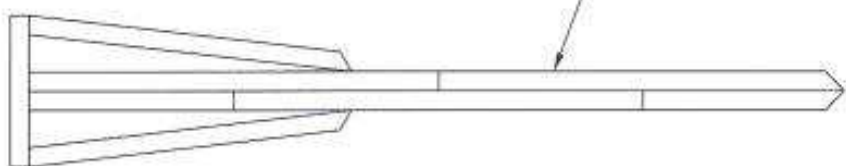


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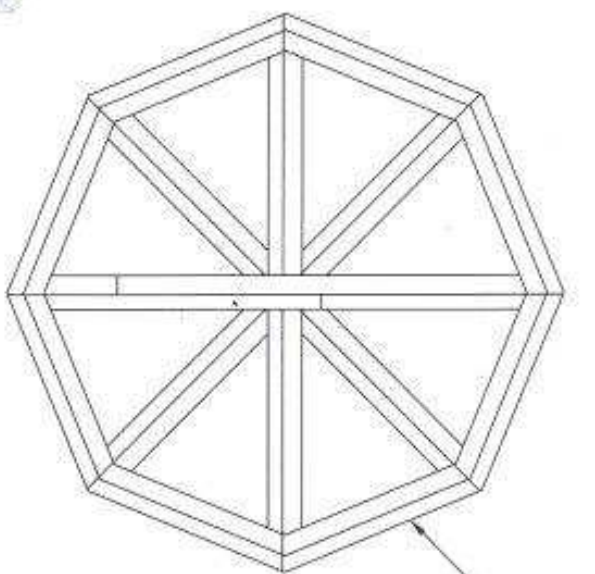




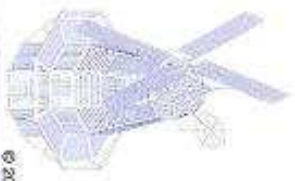
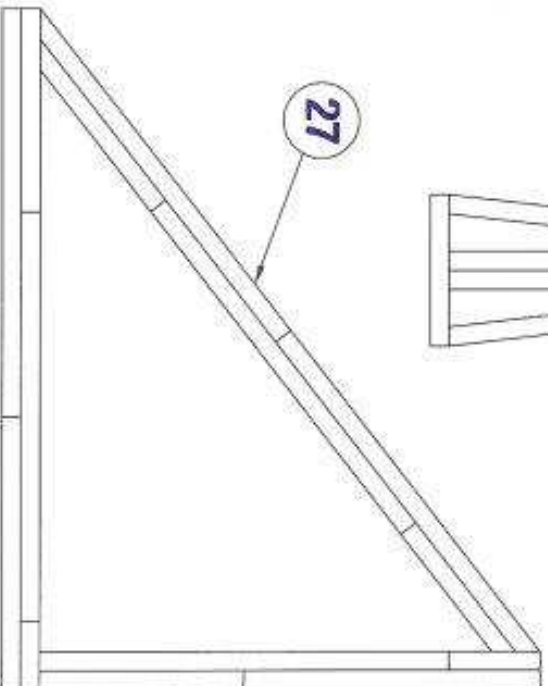
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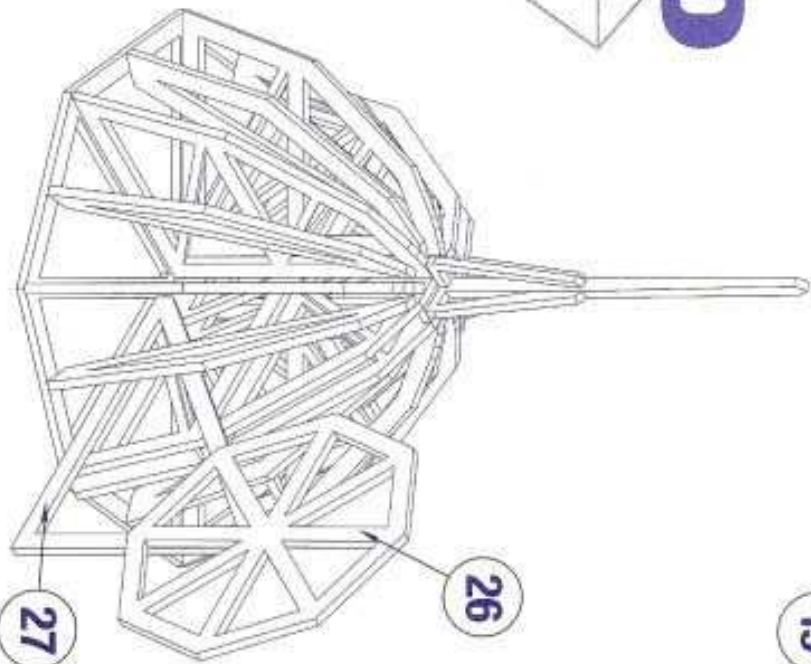
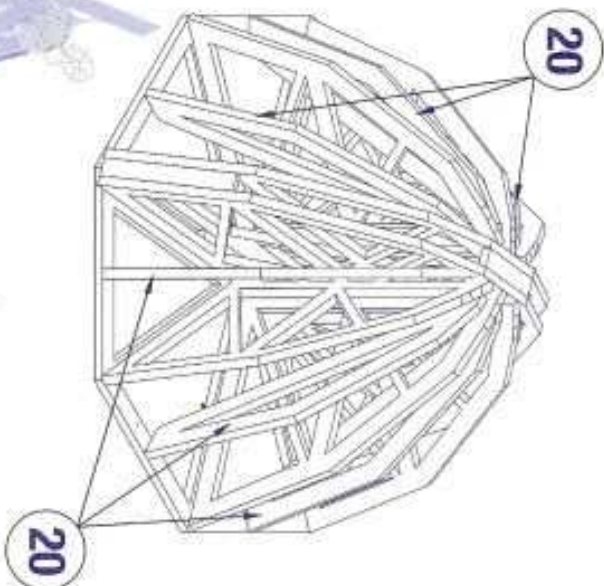
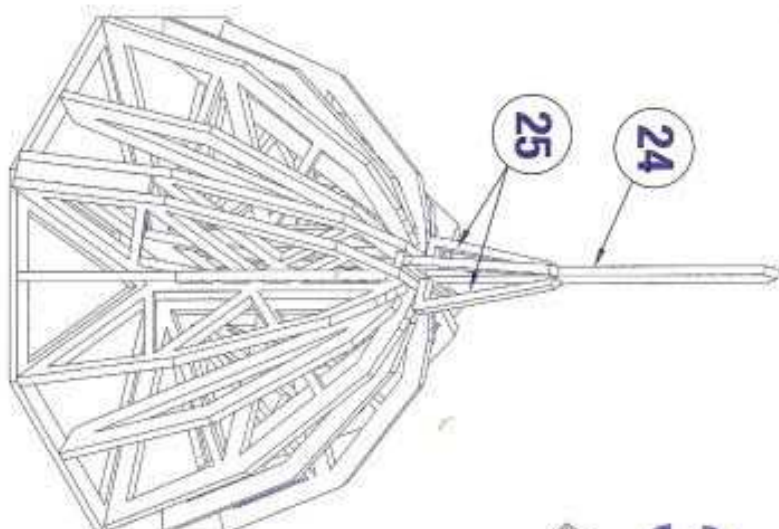
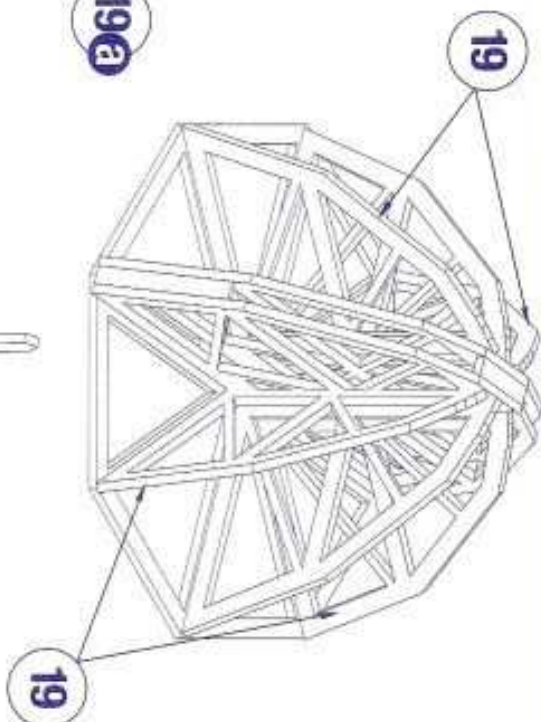
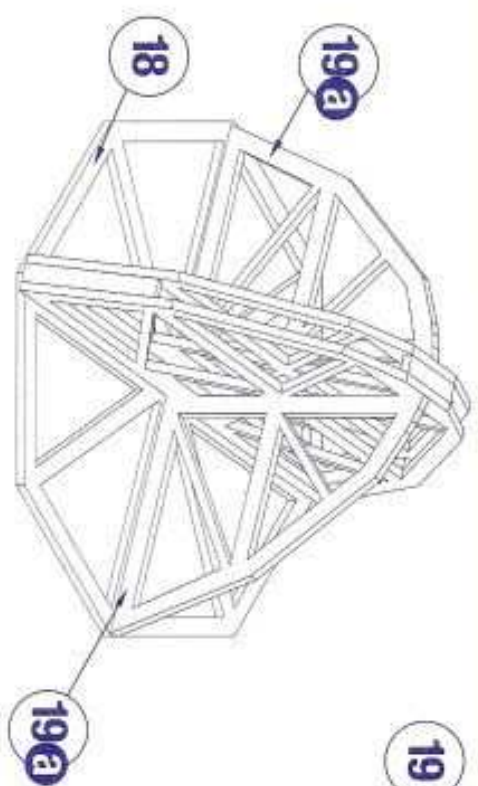
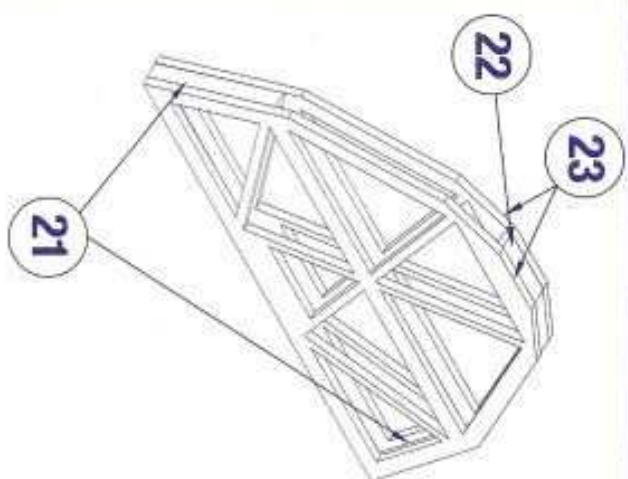


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27





4x 28



2x 29



4x 30



31

31a



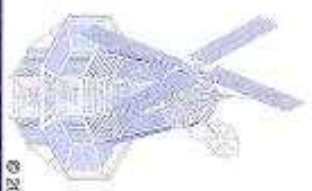
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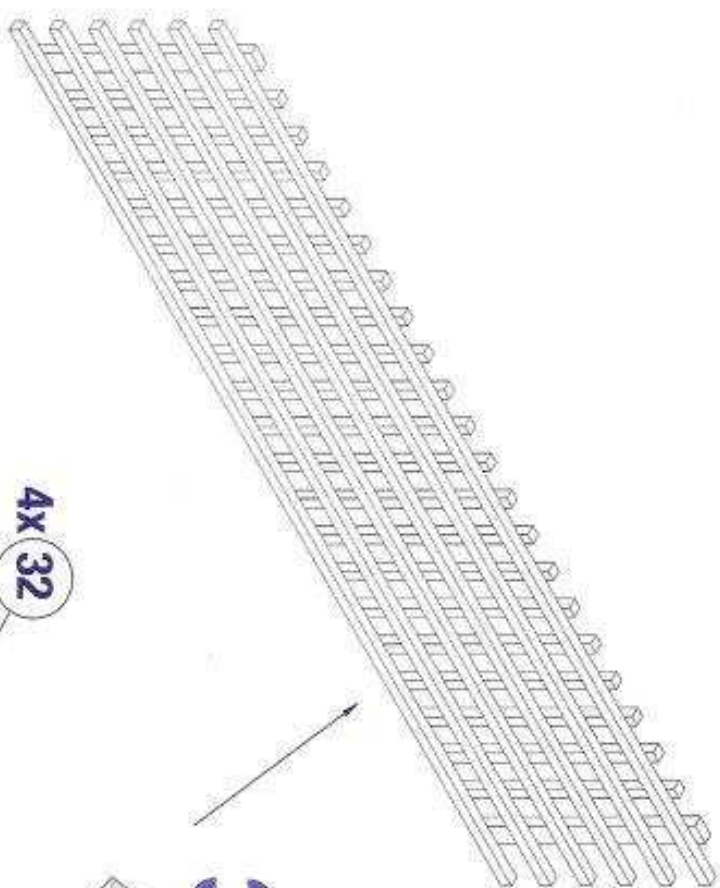


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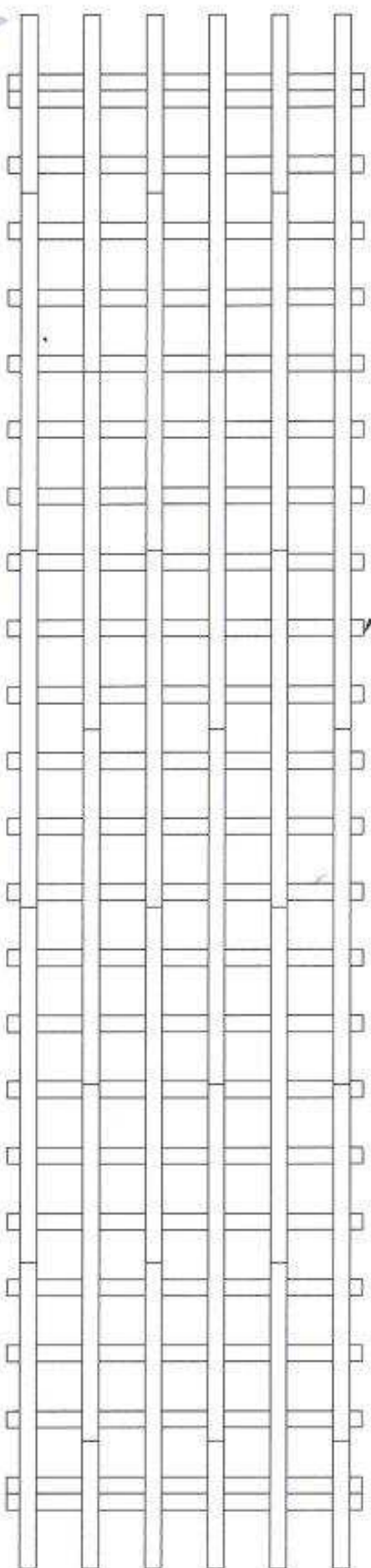
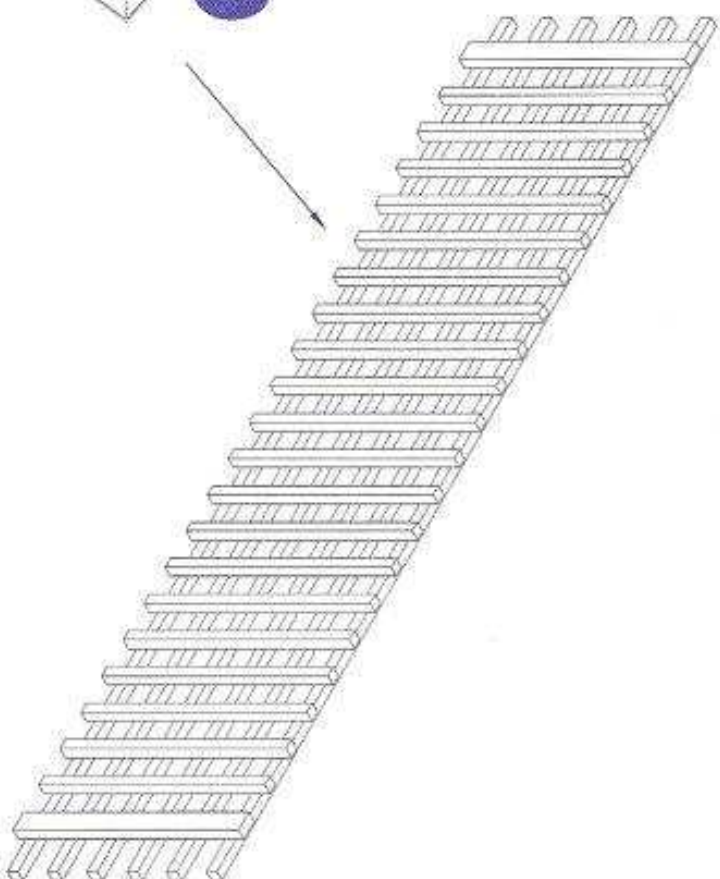
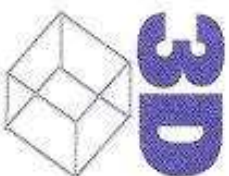


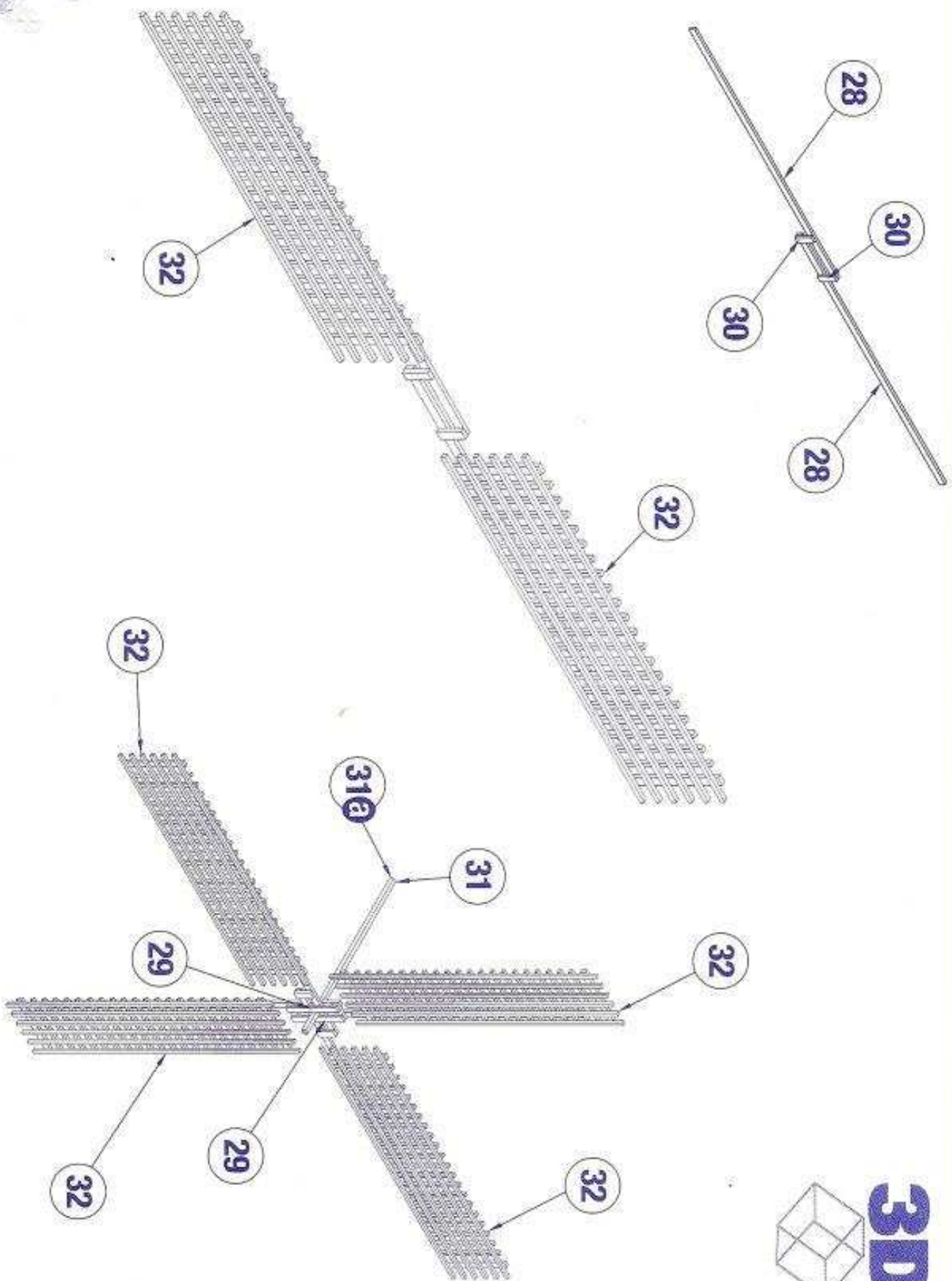
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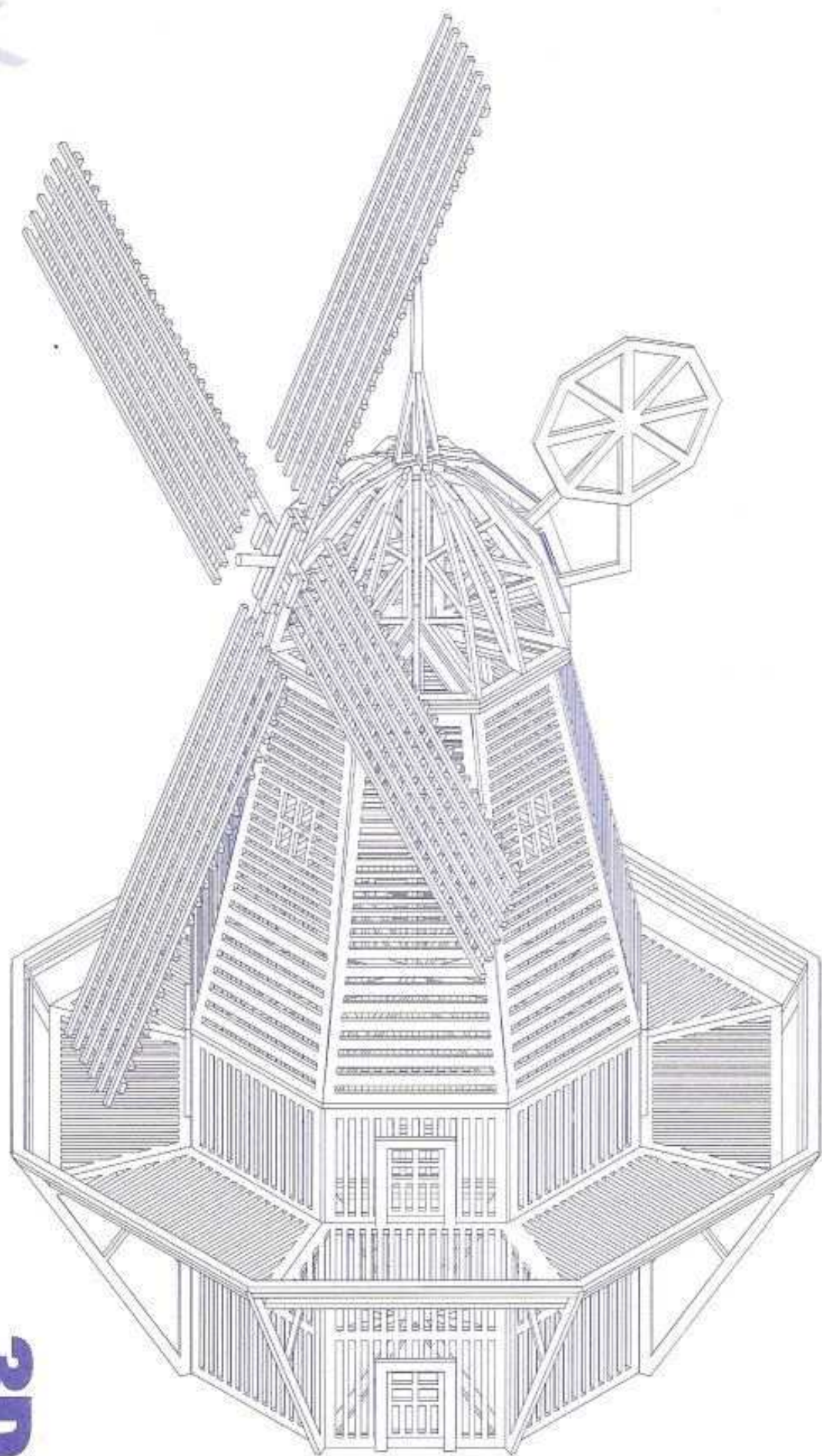
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MATCHITECTURE



3D

18/18