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Tower Site Construction

TOPICS

- Structure Types
- Construction Process
- Construction Costs

INFRASTRUCTURE

- Antenna Support Structure
- Secured Cabinet/Shelter Location
- Power and Grounding
- Access



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STRUCTURE TYPES

- 1.) **Guyed Towers**
- 2.) **Self Support Towers**
- 3.) **Monopole Structures**



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STRUCTURE TYPES

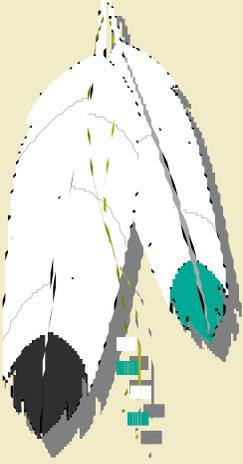
Guyed Towers

- **100' – 500' heights**
- **No Land Constraints**
- **Most Economical**

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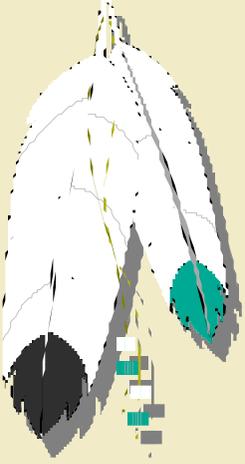
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STRUCTURE TYPES

Self Support Towers

- **100' – 300' heights**
- **Flexibility for Mounting**
- **Accommodate Multiple Tenants**

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STRUCTURE TYPES

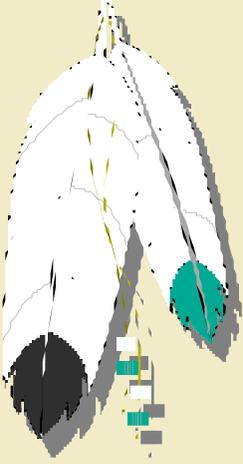
Monopole Structures

- 40' – 200' Heights
- Land Constraints
- Urban Environments
- Most Costly Structure

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Construction Process

(4-6 weeks)

Site Preparation

Erosion Control
Clearing/Grubbing Earthwork
Access Road
Compound

Concrete

Tower Foundation
Shelter/Cabinet Foundation

Electric/Lighting/Telco

600 amp Service Minimum
Lights and Monitoring
B1 vs. T1 (tenants)

- Site Photographs
- Certificate of Occupancy
- Concrete Tests

Grounding

Tower
Shelter
Fence
Equipment \$\$

Tower Erection

Monopoles (1-2 days)
Guyed (7-10 days)
Self Support (10-14 days)

Fencing/Signs/Landscaping

Secure Equip. and Tower
Warning Signs/FCC Registration
Landscaping based on zoning requirements

Punch-List and Closeout Documents

- Grounding Tests
- Redline Drawings
- Tower Height Certification

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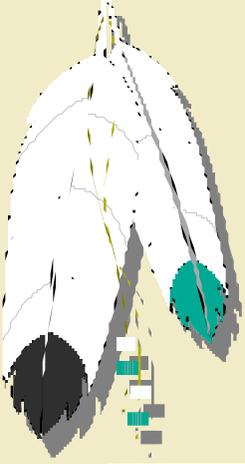
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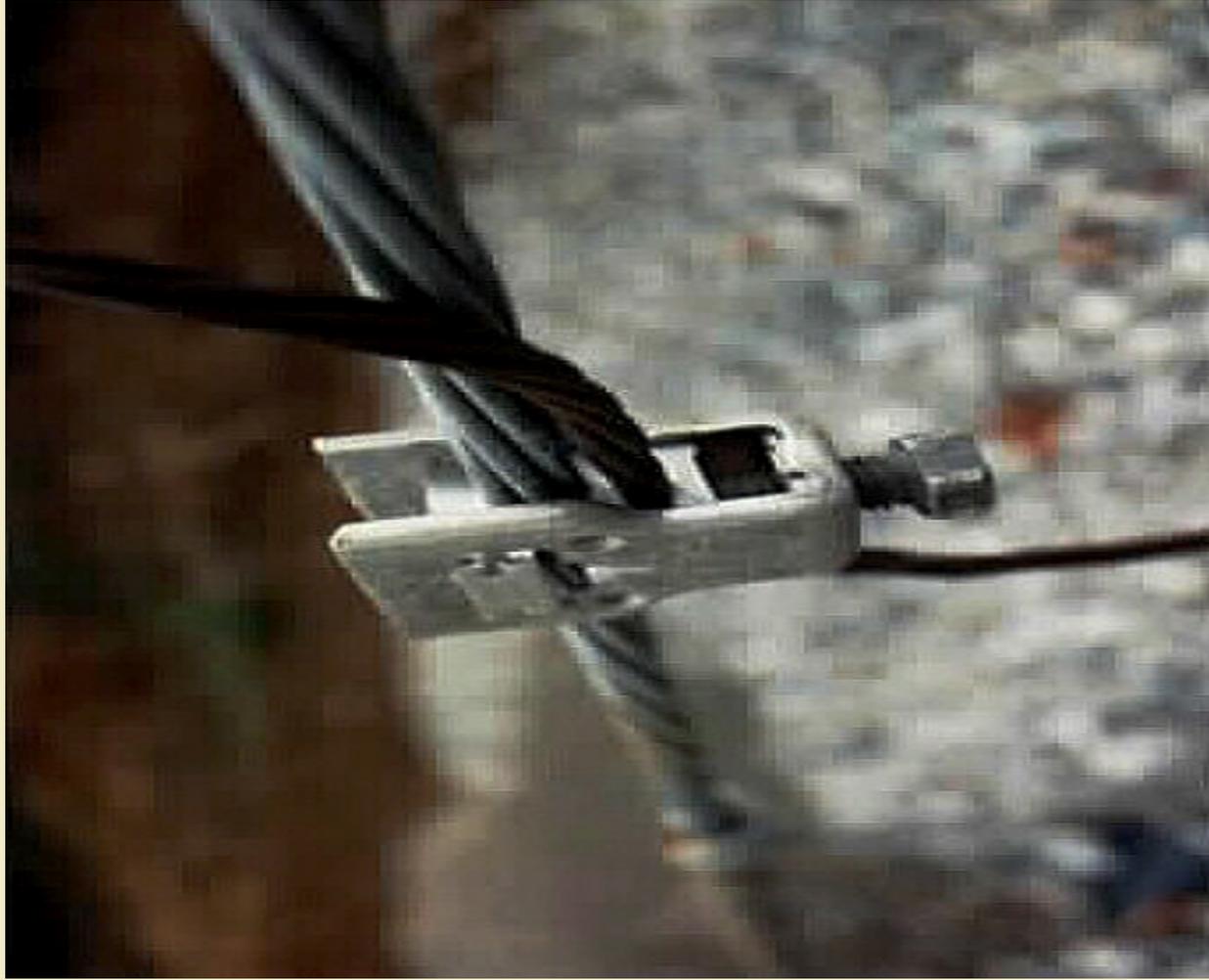
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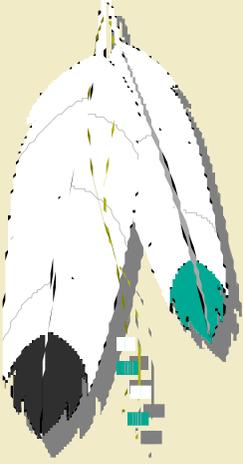


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Construction Process

(4-6 weeks)

Site Preparation

Erosion Control
Clearing/Grubbing Earthwork
Access Road
Compound

Concrete

Tower Foundation
Shelter/Cabinet Foundation

Electric/Lighting/Telco

600 amp Service Minimum
Lights and Monitoring
B1 vs. T1 (tenants)

- Site Photographs
- Certificate of Occupancy
- Concrete Tests

Grounding

Tower
Shelter
Fence
Equipment \$\$

Tower Erection

Monopoles (1-2 days)
Guyed (7-10 days)
Self Support (10-14 days)

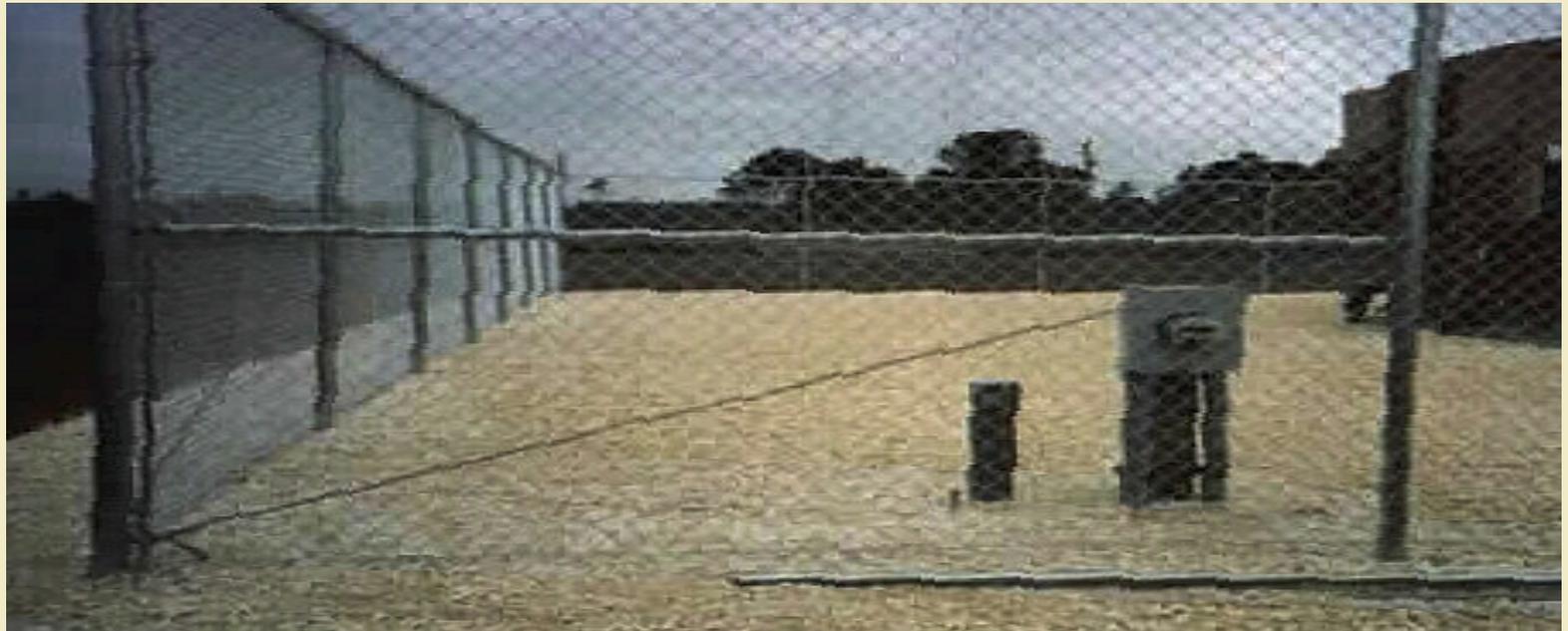
Fencing/Signs/Landscaping

Secure Equip. and Tower
Warning Signs/FCC Registration
Landscaping based on zoning requirements

Punch-List and Closeout Documents

- Grounding Tests
- Redline Drawings
- Tower Height Certification

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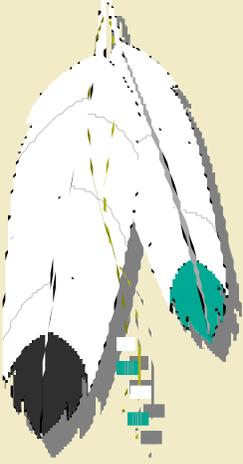


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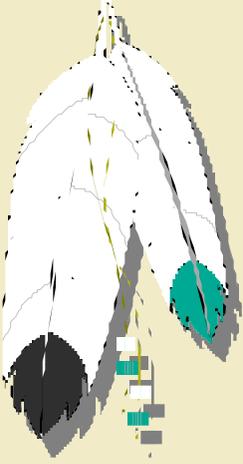
Construction Costs

(Including Tower Structure)

Range from \$120,000 - \$300,000

FACTORS

- **Guyed is First Choice**
- **Less Height – Less Cost (tenant trade off)**
 - **Hemphill builds at least 250' unless regulatory agencies won't approve**
- **Length of Roadway**
- **Terrain**
 - **Mountainous**
 - **Flat**
- **Subsurface Conditions**
 - **Rock**
 - **Water**
- **Clearing**
- **Confined Sites**
- **Availability of Power and Telephone**



Example Tower Site

300'-6 carrier Guyed Tower Site with 700' of roadway and 100' x 100' compound and 600 amp electric service.

Pre-construction....	\$ 35,000
Tower, Lights, Monitor, Shipping....	\$ 45,000
Site Preparation....	\$ 35,000
Concrete....	\$ 20,000
Electric/Telco....	\$ 15,000
Grounding....	\$ 8,000
Tower Erection....	\$ 30,000
Fencing, Signs, Landscaping....	<u>\$ 12,000</u>
TOTAL	\$200,000

Note: A similar installation with a Self Support Tower might be \$ 240,000.

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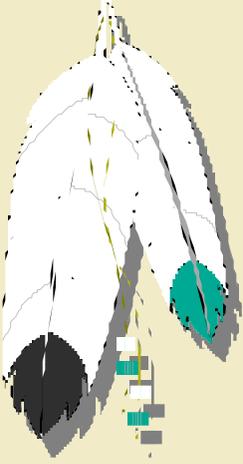
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Construction Process

(4-6 weeks)

Site Preparation

Erosion Control
Clearing/Grubbing Earthwork
Access Road
Compound

Concrete

Tower Foundation
Shelter/Cabinet Foundation

Electric/Lighting/Telco

600 amp Service Minimum
Lights and Monitoring
B1 vs. T1 (tenants)
zoning requirements

Grounding

Tower
Shelter
Fence
Equipment \$\$

Tower Erection

Monopoles (1-2 days)
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Fencing/Signs/Landscaping

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Warning Signs/FCC Registration
Landscaping based on

Punch-List and Closeout Documents

- Site Photographs
- Certificate of Occupancy
- Concrete Tests
- Grounding Tests
- Redline Drawings
- Tower Height Certification