

Atchison, Topeka, & Santa Fe Control Tower 19  
Santa Fe Railway Milepost 51 (The intersection  
of Santa Fe and Union Pacific Railway Lines)  
Dallas  
Dallas County  
Texas

HAER No. TX-22

HAER  
TEX  
57-DAL,  
5-

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

REDUCED COPIES OF MEASURED DRAWINGS

Historic American Engineering Record  
National Park Service  
Rocky Mountain Regional Office  
U.S. Department of the Interior  
P.O. Box 25287  
Denver, Colorado 80225

# HISTORIC AMERICAN ENGINEERING RECORD

HAER  
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## Atchison, Topeka, & Santa Fe Control Tower 19

HAER No. TX-22

**Location:** Atchison, Topeka & Santa Fe Control Tower 19 Santa Fe Railway Milepost 51 (The intersection of Santa Fe and Union Pacific Railway Lines)  
Dallas, Dallas County, Texas

UTM: 14.707290.3626630  
Quad: Dallas, Texas

**Date of Construction:** 1924

**Present Owner:** Dallas Area Rapid Transit (DART)  
1701 North Market Street  
Dallas, Texas 75201

**Present Occupant:** Santa Fe Railway  
5800 North Main Street  
Fort Worth, Texas 76106

**Present Use:** Interlocking Plant

**Significance:** Control Tower 19 is the best preserved example of three early twentieth century interlocking plants remaining in Dallas and Tarrant counties. The tower and two one-story sheds are built in the Craftsman style, and comprise a complex which is representative of standardized service buildings which were constructed by the Atchison, Topeka, & Santa Fe Railroad (AT&SF) as well as other carriers west of the Mississippi. These buildings represent typical plan types which were generated by AT&SF company engineers and constructed by company crews along local and branch lines within the carrier's service area. Built with greater variation than the standard plans for stations and depots, interlocking plants were constructed to control the increasing rail traffic along the company's routes through Dallas and other major transfer hubs during the early twentieth century. The building of Control Tower 19 in 1924 coincided with a major reconstruction program which AT&SF undertook in the 1920s throughout its service area. Constructed initially with a manual interlocking system to work in tandem with a second plant (Control Tower 10), Control Tower 19 was retrofitted in 1932 with the more reliable electric interlocking system, supplied by the General Railway Signal Company of Rochester, New York. This consolidated the switching functions of both towers into one, and allowed AT&SF to raze Control Tower 10, thereby reducing its labor and maintenance costs. Control Tower 19 remained in service until 1992, after Santa Fe Railway sold this section of its Dallas subdivision to the Dallas Area Rapid Transit System (DART) in 1991.

PART I. HISTORICAL INFORMATION

A. Physical History

1. Date of Erection: 1924
2. Architect: AT&SF company engineers
3. Original and Subsequent Owners:  
  
Atchison, Topeka & Santa Fe Railroad (1924-1991)  
Dallas Area Rapid Transit (DART) System (1991-present)
4. Builders, Contractors and Suppliers: The interlocking plant and associated buildings were built by AT&SF company crews. The manual interlocking system was provided by an unknown company and was removed in 1932 when the General Railway Signal Company of Rochester, New York supplied and installed the electric interlocking system.
5. Original Plans and Construction: No original architectural plans or drawings were located during the research investigations.
6. Alterations and Additions: The interlocking plant and associated buildings have been slightly altered at unspecified times during the twentieth century.

- B. Historical Context: Control Tower 19 and its support buildings were constructed in 1924 by the Atchison, Topeka, & Santa Fe Railroad (AT&SF) at the instigation of the Houston & Texas Central Railroad (HTC) to control the increasing rail traffic along AT&SF routes through Dallas[1]. Dallas had become a major transfer hub by 1920 and the building of Tower No. 19 coincided with a reconstruction program undertaken by the AT&SF during the 1920s in that city as well as in Chicago and Los Angeles. Control Tower 19 was constructed to work in tandem with Control Tower 10, an earlier manual interlocking plant which began service in 1903. Control Tower 10 was located at milepost 52, 1.0 miles to the southwest, and the operation of two towers allowed for a more efficient handling of rail traffic.

Control Tower 19 is exemplary of the building design policy of AT&SF as well as other western carriers in utilizing essentially plain, functional designs, which could be inexpensively modified for each locale by making simple changes in plan or exterior detailing. This reflected the growing standardization of American architecture and the increasing popularity of local architectural styles. AT&SF standard plans eventually would bear a significant resemblance to the designs of the Burlington Route, Great Northern, and several other western lines[2].

Control Tower 19 and the two service sheds were built in the Craftsman style and are representative of typical plan types which were generated by AT&SF company engineers and constructed by company crews. AT&SF interlocking plants were built with greater variation

than the standard plans for stations and depots, partly due to the program requirements associated with manual and electric interlocking systems, and depending upon the date of construction and the interlocking system used, plants differed in plan as well as building height[3].

Despite the increase in infrastructure development, AT&SF maintained a policy of reducing labor and maintenance costs, whenever possible. The installation of the General Railway Signal Company (G.R.S.) interlocking system in Control Tower 19 in 1932, while further enhancing the efficiency in controlling increased rail traffic, was viewed as an opportunity to concomitantly reduce expenditures. As a result, Control Tower 10 was razed, after the switches of both towers were consolidated into Control Tower 19[4]. The new system provided however, a significant technological advancement over manual interlocking capabilities.

The electric interlocking system, with its illuminated track diagram, allowed towers to be located at greater distances from the switches and signals they operated. Use of the manual interlocking system required the tower operator to be able to see tracks, trains, switches and signals, and it was standard practice to locate towers no more than seven or eight hundred feet from the farthest switch or signal. The G.R.S. interlocking system allowed these distances to be significantly increased, from between one and six thousand feet[5].

The G.R.S. system consisted of a power source provided by storage batteries and a generator, power control apparatus or relays introduced between the power source and interlocking machine, an interlocking machine with levers for the operation of switch and signal mechanisms, switch and signal mechanisms with operating and indicating circuits, and a control mechanism for the prevention of the unauthorized movement of any function[6]. The advantages of this new system were touted by G.R.S. in its *Electric Interlocking Handbook* (1930) and became the choice of carriers such as AT&SF in their expansion programs throughout the West[6].

The operators of Control Tower 19 switched from between 65 to 100 trains daily for carriers such as: Gulf, Colorado, & Santa Fe; Union Terminal; Missouri-Kansas-Texas of Texas; Trinity & Brazos Valley; St. Louis, San Francisco & Texas; Chicago, Rock Island, & Gulf; St. Louis, Southwestern of Texas; and Houston & Texas Central. The plant remained in service from 1932 to 1992[7].

In 1991, in an effort to divest itself of all north-south routes and concentrate only on transcontinental service, Santa Fe Railway sold the Texas main and local lines to Burlington Northern as well as this section of the Dallas subdivision to the Dallas Area Rapid Transit system, and abandoned the structures for their relocation and preservation at a local railroad museum.

There was an absence of extant records in the Santa Fe Railway archives for Control Tower 19. This was indicated as being a common occurrence by Santa Fe archivists in Topeka,

Kansas, Chicago, Illinois and Houston, Texas. The carrier's employees had a practice of regularly purging company documents and the lack of even maintenance records and as-built plans for Tower No. 19 was probably a result of that activity[8].

## PART II. ARCHITECTURAL STATEMENT:

### A. General Statement:

Located at milepost 51 at the cross-over of the Santa Fe and Union Pacific Railway Lines, Control Tower 19 and its associated buildings comprise an intact early twentieth century railroad site, which features buildings that have been in continuous use until the late twentieth century. The tower faces northeast and is oriented perpendicular to the Santa Fe line and parallel to the Union Pacific line. The site is located in an industrial district of Dallas, south of the central business district, and is approached from the southeast by a gravel drive. The site includes a three-story interlocking plant, HAER No. TX-22; a one-story maintenance shed, HAER No. TX-22-A; and a one-story tool shed, HAER No. TX-22-B.

The site is not landscaped and the right-of-way is cleared and covered in gravel. An 8-1/2" thick concrete wall, which was built to protect the tower and its support buildings from potential high water from floods, which the site is susceptible to, is located on the west side of the buildings, and is oriented northeast-southwest. Another 8-1/2" thick wing wall, oriented in a north-south direction, protects the south side of the tower.

1. History: Control Tower 19 was built in 1924 and furnished with a manual interlocking system, and later retrofitted with an electric system in 1932. Four ground floor window openings were replaced with metal louvers and enclosed with wood siding ca. 1932. Two second floor window openings on the north as well as the south and east sides of the building were enclosed and covered in wood siding ca 1932. The original stair was removed and replaced ca. 1970 and some equipment modifications were made at unspecified times during the twentieth century.
2. Architectural Character: The tower is a three-story interlocking plant with a wood stair located at the south side of the building. (See photographic documentation, HAER No. TX-22-1 through HAER No. TX-22-12 and HAER drawings, Sheets 1-3).

### B. Description of Exterior:

1. Overall Dimensions: The building measures 12'-9" in width and 30'-9" in depth.
2. Foundations: The foundation is a raised slab of poured-in-place, board-formed concrete.

3. **Wall Construction:** Exterior walls at the ground floor vary in thickness from 9-7/8" to 10-1/4" and are of board-formed concrete. Interior wall surfaces feature horizontal formwork impressions, 9-3/4" in width, while exterior surfaces are smooth-finished. Wall thickness at the second and third floors averages at 7" in thickness, and the walls are covered in wood drop siding, 5/8" thick with a 5-1/4" exposure. The tower is trimmed at the corners with 1" x 6" corner boards, which terminate into a 6" frieze board.
4. **Structural System, Framing:** The second and third floors of the tower are of balloon frame construction, using circular-sawn, 2" thick members. Floor joists are nominal-sized 2" x 10", ceiling joists are 2" x 6", with a single 2" x 8" laid northeast-southwest, at mid-span. Rafters are circular-sawn 3-1/2" x 5-3/4" and are supported by a ridge rafter of equal dimension.
5. **Chimneys:** None. Stove pipes for open gas heaters are located on the second and third floors.
6. **Openings:**
  - a. **Doorways and Doors:** Original doors are four or glazed five-panel and measure 2'-7-3/4" x 6'-7-1/4", and 2'-11" x 6'-9-1/2", respectively. A pair of vertical board service doors, measuring 3'-3" x 6'-7", are suspended from an overhead track and provide access to a cable termination room on the ground floor. A glazed, solid core wood door has replaced the original panelled entry door to the switching equipment room and measures 2'-8" x 6'-8". The heads and jambs are simply cased in 1" thick wood trim, with widths varying from 5" to 6-1/4". Door jambs and heads in the concrete walls at the first floor are finished with 1" chamfers.
  - b. **Windows:** Original windows at the first floor were two-light, horizontal metal casements which have been removed for the installation of metal vents or covered over with wood siding. Original windows at the second floor have been removed and the openings enclosed with wood siding, and were probably similar to the third floor units. Windows at the third floor are single-hung, one-over-one wood sash, varying in width from 2'-2" to 2'-2-3/4", and are 6'-0" in height. The heads and jambs are cased in 1" thick wood trim, with 8" or 10" widths. The heads include crown molding, with a tapered 2" x used as a drip cap, and a double wood sill, trimmed at the base with a continuous horizontal molding.
7. **Roof:**
  - a. **Shape, Covering:** The roof is hipped with a slope of 7 in 12 and is covered in composition shingles over dutch tab asbestos shingles.
  - b. **Cornice:** The soffit is open and features exposed 3/4" x 5-1/4" tongue and groove, roof decking, supported on wood rafters with scroll-sawn decorative tails and arched brackets that interrupt a 5/8" x 3-1/4" cornice mold.

C. Description of Interior:

1. Floor Plans:

- a. First Floor: The first floor is divided by a concrete partition wall into two rooms which are entered through two separate doors. The east room is the cable termination room and also serves as ancillary storage. The west room is the battery room.
- b. Second Floor: The second floor is divided by a wood frame partition into a corridor, oriented east-west which also serves as a restroom, and a large relay equipment room.
- c. Third Floor: The third floor is open and serves as the switching equipment room.

2. Flooring: The first and second floors are smooth-finished, 8" concrete slabs. The third floor is covered in 3/4" x 3-1/4" tongue and groove, laid northwest-southeast, and painted.

3. Wall and Ceiling Finish: Interior wall thickness at the first floor is 8"

4. Doorways and Doors: A single four-panel interior door, measuring 2'-5" x 6'-7", is located at the second floor and provides access from the corridor/toilet to the relay equipment room.

5. Decorative Features: None.

6. Lighting Fixtures: Light fixtures are ca. 1960 ceiling-mounted incandescents and fluorescents.

7. Heating: The first and second floors are unheated. An open gas and an electric heater provide heat for the third floor. Window units provide air-conditioning for the third floor.

8. Equipment:

- a. First Floor: The cable termination room includes a wooden cabinet or cable termination box which houses cables which are connected from the battery room and fed through a chase in the ceiling to relay racks on the floor above. Two battery racks are located in the battery room to generate power for the operation of the G.R.S. interlocking machine.
- b. Second Floor: The relay equipment room houses relay racks and a radio transmission power booster.
- c. Third Floor: The G.R.S. interlocking machine is located on the switching equipment room floor and includes two illuminated track diagrams and a direct current ampmeter. A power terminal is located in the northeast corner of the room and an operator's desk, radio and a central traffic control board are positioned in the southeast corner.

PART III: ENDNOTES

1. Felton Kerley, interview with Stan Solamillo, written notes, Dallas, Texas, 5 May 1992.
2. Roger H. Grant and Charles W. Bohi, *The Country Railroad in America*:141, Boulder, Colorado: Pruett Publishing Company, 1978.
3. H.D. Conner, interview with Stan Solamillo, written notes, Fort Worth, Texas, 15 June 1992.
4. Leo Williams, interview with Craig King, written notes, Dallas, Texas, 20 April 1992; Bryant, *History of the Atchison, Topeka, & Santa Fe Railway*:250, New York: Macmillian Publishing Company, Inc., 1974.
5. Henry M. Sperry, editor, *Electric Interlocking Handbook*:10, Rochester, New York: General Railway Signal Company, 1930.
6. Idem.
7. Felton Kerley, interview with Stan Solamillo, written notes, Dallas, Texas, 5 May 1992; Zlatkovich, *Texas Railroads: A record of Construction and Abandonment*: pp. 25-58, Bureau of Business Research. Austin: University of Texas, 1981.
8. Thaine Hoffman, interview with Stan Solamillo, written notes, Houston, Texas, 18 July 1992.

PART IV: SOURCES OF INFORMATION

- A. Original Architectural Drawings: No original architectural drawings of the buildings at this site were located.
- B. Early Views: No early photographs of this complex were located during the research however, photographs of other period interlocking plants throughout the AT&SF service territory were found in the private collection of H.D. Conner in Fort Worth, Texas and were used for comparative purposes.
- C. Interviews:  
  
Kerley, Felton. Interview with Stan Solamillo. Written notes. Dallas, Texas. 5 May 1992.  
  
Hoffman, Thaine. Interview with Stan Solamillo. Written notes. Houston, Texas. 18 July 1992.  
  
Williams, Leo. Interview with Craig King. Written notes. Dallas, Texas. 20 April 1992.

D. Bibliography:

1. Secondary and Published Sources

Bryant, Keith L, Jr. *History of the Atchison, Topeka, & Santa Fe Railway*. New York: Macmillan Publishing Company, Inc., 1974.

Grant, H. Roger and Charles W. Bohi. *The Country Railroad Station in America*. Boulder, Colorado: Pruett Publishing Company, 1978.

Henry M. Sperry, editor. *Electric Interlocking Handbook*. Rochester, New York: General Railway Signal Company, 1930.

Zlatkovich, Charles P. *Texas Railroads: A Record of Construction and Abandonment*. Bureau of Business Research. Austin: University of Texas, 1981.

PART V: PROJECT INFORMATION

This recording project was funded by the Dallas Area Rapid Transit Authority (DART) and undertaken as part of the Historic American Engineering Record (HAER) in order to mitigate the adverse effect of its removal (along with a maintenance and tool shed) under the provisions of Section 106 as set forth by the Historic Preservation Act, 16 U.S.C. Section 470(f). The removal is necessitated by the construction of a light rail transit system. The field work and measured drawings were prepared by ArchiTexas of Dallas. The recording team consisted of Larry Irsik and Craig King. Historical research and architectural analysis were conducted and prepared by Stan Solamillo of Dallas. Archival photography was done by Brendan Dunnigan of Arlington.