NPS Form 10-900
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United States Department of the Interior
National Park Service

National Register of Historic Places Inventory—Nomination Form

For NPS use only
received APR 3
date entered MAY 2

See instructions in *How to Complete National Register Forms*
Type all entries—complete applicable sections

1. Name

historic Broad Brook Company

and/or common Broad Brook Company Factory Complex

2. Location

street & number Main Street NA not for publication

city, town East Windsor x vicinity of Broad Brook

state CT code 09 county Hartford code 003

3. Classification

Category	Ownership	Status	Present Use	
___ district	___ public	x occupied	___ agriculture	___ museum
x building(s)	x private	x unoccupied	___ commercial	___ park
___ structure	___ both	___ work in progress	___ educational	___ private residence
___ site	**Public Acquisition**	**Accessible**	___ entertainment	___ religious
___ object	___ in process	___ yes: restricted	___ government	___ scientific
	___ being considered	___ yes: unrestricted	x industrial	___ transportation
	NA	x no	___ military	x other: vacant

4. Owner of Property

name James R. Testa & John Bartus

street & number 104 Main Street

city, town Broad Brook NA vicinity of state CT 06016

5. Location of Legal Description

courthouse, registry of deeds, etc. East Windsor Land Records, Town Hall

street & number 11 Rye Street

city, town Broad Brook state CT

6. Representation in Existing Surveys

title State Register of Historic Places has this property been determined eligible? ___ yes x no

date 1985 ___ federal x state ___ county ___ local

depository for survey records Connecticut Historical Commission

city, town 59 South Prospect Street Hartford state CT

United States Department of the Interior
National Park Service

National Register of Historic Places Inventory—Nomination Form

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Broad Brook Company Factory Complex
Continuation sheet Owners Item number 4 Page 1

Town of East Windsor
Box 213
Broad Brook, CT 06016

State of Connecticut
Department of Transportation
24 Wolcott Hill Road
Wethersfield, CT 05109

United States Department of the Interior
National Park Service

National Register of Historic Places Inventory—Nomination Form

Inventory of Historic Engineering and Industrial Sites

1981 x state

Connecticut Historical Commission
59 South Prospect Street
Hartford CT

7. Description

Condition		Check one	Check one
___ excellent	_X_ deteriorated	___ unaltered	_X_ original site
___ good	___ ruins	_X_ altered	___ moved date ___
_X_ fair	___ unexposed		

Describe the present and original (if known) physical appearance

Overview

The Broad Brook Company Factory Complex is a group of stone and brick industrial buildings constructed from c. 1842 through 1950 in the village of Broad Brook, town of East Windsor, Connecticut. The principal group of buildings is a series of three large, 5-story, gable-roofed structures dating from 1842-1880 that runs parallel with Main Street. At the north end of the group several late-19th-century buildings form a U-shaped configuration near the brook. At the south end of the site buildings constructed in 1929 and 1950 form the newest components in the complex. A free-standing power house is located to the rear, near the brook. In all, there are about 18 structures in the complex, providing 213,000 square feet of floor space and occupying 10.6 acres of land.[1] (See aerial map.)

The factory was operated as a woolen mill from its inception,c. 1835, to 1954 when it was acquired by the Hamilton Standard Division of United Technologies. Subsequent to Hamilton Standard's sale of the property in 1977 some of the buildings have had industrial tenants, but more than half of the floor space now is vacant.

Boundary Justification

The boundary includes land that has traditionally gone with the factory, and its dam. The dam (Photograph 1) is at the northeast corner of the site, at the outlet of a 35-acre millpond running to the northeast. The dam, its abutments, the headgates and the road under which the penstock runs from the dam to the factory are included within the boundary of the nominated property. At the foot of the dam the brook runs under Main Street to the west and south, forming the north and west boundaries of the complex. Main Street runs south from the dam, forming the eastern boundary, and Mill Street is the southern boundary. At the corner of Main and Mill streets a church and bank are excluded. (See aerial map.) The boundary so described is the boundary of lot 8 town map 18A, plus the dam and land connecting lot 8 with the dam, through which the penstock runs.

The Buildings

A chief feature of the site of the factory complex is the sharp change in land contour, making possible the dam in the brook. It continues through the site in a north-south direction, with the elevation falling off to the west of Main Street. Because of this change in elevation, the buildings parallel with Main Street appear to be four stories high when viewed from

the street, but five stories high when viewed from the mill yard on the west. In order to provide light for the windows of the bottom floor on the Main Street side there is a large areaway running the length of the buildings.

The general arrangement of the complex has changed somewhat over the years, but the basic row of buildings parallel with Main Street has been fixed. Buildings extending westerly into the mill yard have changed, as may be seen by comparing the 19th-century Bailey view (Photograph 2) with the present-day aerial map. The buildings provided a complete woolen manufacturing operation, including picking, carding, spinning, dressing (of warps), weaving and finishing. Steps in finishing included sewing, fulling, scouring, carbonizing, napping, shearing and dyeing. Generally, the buildings parallel with Main Street contained the spinning and weaving, while those projecting into the yard were for dyeing, finishing and storage. One structure at the northwest corner was, and is, a water filtration plant, filtering water from the millpond for use in the finishing. The buildings extending from the main range westward into the yard were demolished in 1954 after Hamilton Standard bought the property.

The site was initially attractive because of its potential for developing water power. The woolen mill displaced earlier gristmills and sawmills. In addition to the dam at the Main Street Bridge, there was another dam about 100 feet west of the bridge, no longer in existence. A further dam was built in the middle of the west boundary. Water from the dam at the bridge was brought by an underground conduit to a wheel or turbine at the north end of Building 3A and shafting spread throughout the mill from this location. Water was also brought from the Butternut Pond (now drained and dry) southeast of the mill, by canal and conduit to the water wheel and for general use throughout the mill. (See Bailey view and 1869 atlas map) Portions, at least, of the underground conduits are still in place. The dam on the west border of the property was used to generate power for the machine shop in the mill yard. Over time, the water power was augmented and then substantially replaced by steam, but as late as 1952 a Corliss steam engine was in place producing 600 horsepower. No indication remains of the water wheel, turbine or steam engine. Nothing remains of the shafting and belting used to distribute throughout the mill the power they developed.

In the following inventory of the buildings the building numbers are keyed to the sketch map. The dates are taken from the assessor's records. Where the assessor got the dates is unknown, but a likely source is insurance maps, which have not come to hand except for one, attached. In a history of the company written in 1950 by Benjamin S. Hanson, master mechanic at the mill, with 54 years of service, Hanson states that the insurance map dates are inaccurate and he corrects some of them. The dates quoted should be taken as approximate.

Building 3
5 stories
44x105'
1842
Photographs 3 - 9

Building 3 is constructed of reddish brown stone that appears to be harder than ordinary sandstone or brownstone, perhaps more like trap rock, laid up in irregular ashlar blocks. It was quarried nearby.[2] Originally, Building 3 was four stories, as may be seen in the insurance company sketch, but was raised to five stories, c. 1880. A distinguishing characteristic of the roof was its central belvedere or low, square tower, used to house a bell. (See Bailey view.) The tower was taken down in 1922, at which time the original slate roof was replaced with the present asbestos shingles. Roof eaves are stone (Photograph 5) although the insurance company notes say the cornice is wood. There are ten scuttles irregularly placed in each slope of the gable roof.

Building 3 has 13 bays. On the east elevation, the third and fourth floors have 12-over-12 windows and the fifth floor 2-pane windows, probably the original scheme. At the second floor, the windows are longer, 6-over-6, under 2-pane transoms and segmental relieving arches. The arches appear to have been introduced when it was decided to increase the size of the windows. The brick segmental relieving arches take the place of the regular stone lintels. The regular stone ashlar serves as the sills.

On the west elevation, the 12-over-12 windows, whose lights are 7x8½ inches, are visible at the first floor; otherwise, the windows appear the same as on the east elevation, enlarged 6-over-6 at the second floor, 12-over-12 at the third and fourth floors, and 2-pane windows in the fifth floor. In addition, at the eighth bay from the north there is an added peaked dormer with 6-over-6 sash. At the point where Building 3 joins Building 3A there is no vertical line in the masonry; the ashlar is a continuous irregular pattern. There are diamond-shaped iron washers or plates between the windows to anchor the tie rods that run across the building from wall to wall at floor level.

At the north elevation of Building 3, the first and second stories are obscured by Buildings 3C, 3D and 3E. The third, fourth and fifth floors of Building 3 have four 12-over-12 windows, and in the gable peak are two horizontal 8-pane windows.

Projecting from the east elevation of Building 3, there is a 12x21½-foot brick stair and toilet tower, with a double goods door at each floor, built of brick laid up in common bond. The upper sections of the wooden doors are glazed while the lower sections have boards placed on the diagonal in an X pattern over vertical boarding. At the top, a beam projects to hold a block and tackle. This tower and the corresponding tower in Building 3A were built in 1918, replacing earlier wooden stairway and toilet tower.

On the interior the depth of the window reveals shows that the stone walls are two feet thick at the bottom, diminishing in thickness in the upper floors. (Photograph 6) The interior framing is heavy timbers and planks, in the typical, 19th-century, slow-burning mill construction. On the first two floors a row of posts is carried down the center, spaced between the windows, so there are twelve posts. Some are now steel and many remain as wood. Posts or lolly columns have been added for extra strength in some areas. Some beams were reinforced with steel channels in 1937. The fourth and fifth floors are supported by 1½-inch rod hangers suspended from the roof trusses. The vertical rods run parallel with the two rows of fifth floor posts, the posts being part of the truss construction. At the fourth floor there are rods without posts. (Photographs 7 and 8) This arrangement gives the third floor the advantage of being an open span, but decreases the live load-carrying capacity of the fourth and fifth floors to 21 pounds per square foot, compared with 47 pounds on the second and third floors. The upper floors were used for operations that required relatively light-weight machinery, such as jack spinning and creeling.

Building 3A
5 stories
44x169'
1867
Photographs 3, 4, 9 and 10

Although built 25 years later, Building 3A is simply a continuation of Building 3. It is longer, 169 feet compared with 105 feet, but construction details are unchanged. A fire wall that projects above the roof separates the two buildings. Fourth floor windows in Building 3A have been lengthened as well as those at the third floor. Building 3A also had a low tower that housed a water tank for the sprinkler system. In the case of Building 3A, the west wall has bowed out of plumb by one to two feet, apparently as a result of movement in the foundations. This problem has been addressed, in 1938, by tieing the fourth floor in with the stair tower by use of tie rods and by adding external steel framework on the west wall. The lack of support formerly provided by the building extending west in the yard may have contributed to the problem.

There is a 21¼ x 27-foot stair and toilet tower on the east elevation of Building 3A, similar to that of Building 3, but deeper.

There are several 1-story sheds of corrugated metal and cast masonry units on the west elevation of Building 3A, and at its south end, in the corner formed by Buildings 3A and 14, a brick freight-elevator shaft which was erected in 1929 to replace earlier elevators. The roof of the elevator shaft has an iron-and-glass pyramidal skylight.

Buildings 2 and 2A
Tall one story
33 3/4 x 64 & x 28'
1896 and 1928
Photograph 3

Building 2 was long used as the town firehouse but it was built as the engine room for the mill. Building 2A, connecting Buildings 2 and 3A, was built to house an electric generator. Building 2 is altogether a different type of structure from Buildings 3 and 3A. It is constructed of red brick with red mortar in a bond of all stretchers except for random headers in every ninth course or so. The hipped roof, covered with asphalt shingles, has a small, central tower with pyramidal roof. Most of the windows have brownstone lintels and sills, with tall, industrial, steel sash. On the side elevations windows are in recessed bays that are corbeled out at top and bottom. The effect is to create partial pilasters between the bays, i.e., those wall sections that are not recessed by corbeling appear as pilasters. A side door on the north elevation is wooden with five horizontal panels, under a transom of a horizontal light surrounded by a border of small lights. These details of brickwork and carpentry appear in other buildings of the complex of similar date.

The south elevation of Building 2 has eight bays, as does the north, but on the south elevation five windows have segmental relieving arches instead of brownstone lintels, for no apparent reason. Perhaps they are added. There are two modern overhead doors in the east elevation, toward the street. On the interior the roof support system of wooden Howe trusses is visible.

Building 2A, consisting of one high story over basement, is also brick with steel sash, except that on the south elevation there is a double goods door. The roof is flat.

Building 3B
5 stories
44 x 75'
1880
Photographs 10, 11

Building 3B continues the dimensions of Buildings 3 and 3A, extending their combined 274 feet by an additional 75 feet, bringing this principal range of 19th-century buildings to a total of 349 feet. The interior frame construction of Building 3B is the same as that of Buildings 3 and 3A, including the device of suspending the fourth and fifth floors from the roof trusses. The exterior, however, is brick, and there are dormers in the fifth floor. The stone eaves are continued.

The brick is laid up in common bond with bays for the windows corbeled and recessed as in Building 2. (Photograph 11) The pilasters dividing the bays are 8-over-8 in the first floor, at the level of the moat, 6-over-6 in the second, third and fourth floors, all with segmental relieving arches. The peaked dormers have 2-over-2 sash with the upper rail segmental and the

upper glazing segmental to fit. (Photograph 11) In the south elevation, only the fourth and fifth floors are visible above the adjoining building. There are five bays at the fourth floor, three windows in the gable end at the fifth floor and one in the gable peak. (Photograph 10) The lower half of the west roof slope has been removed to make the interior a single space with Building 14 at the fifth floor.

Building 4
2 stories
36 x 58'
1878
Photograph 3, 10

Building 4 is a 2-story, gable-roofed brick structure. There is a brick dentil course under the eaves on the side elevations, while the gable ends, treated as pediments, have dentil courses under the raking cornices and cornice returns. These stylistic touches of some architectural pretension are unusal in the complex. The roof is covered with slate, and there are three scuttles at the ridge line. The brick is laid up all stretchers except for alternating headers in every ninth course.

Piers divide the east elevation into six bays, each having a 6-over-6 window with segmental relieving arch and brick sill. On the similar west elevation an enclosed wooden walkway connects the second floor of Building 4 with the third floor of Building 3B. Diamond-shaped washers indicate the presence of tie rods at second-floor level and at mid-level in the second story. The north and south elevations have four bays, and diamond-shaped washers at the attic floor level. There is a glazed door at the left, first floor, south elevation. This building may have been the mill office.

Buildings 13A, 13B
1 story
22 1/3 x 26', 14x29'
1858
Photograph 2

These two 1-story brick buildings work as a unit. The roof of Building 13A is gable on hip with low, louvered tower. Building 13B has a hipped roof. These buildings may have housed an early steam engine.

Building 14
5 stories
54 x 75'
1920
Photographs 10, 13, 14

Building 14 is an infill structure built of brick, steel columns and heavy wooden beams. Windows are steel sash. There is an overhead walkway to Building 26. A 3-story ell of this building extends to the east south of Building 3B. on the diagram the ell is included with Building 3B, for reason unknown. The ell was built later than the principal section of Building 14.

Building 14A 2 and 3 stories 77 x 119' 1929 Photograph 10, 15	The areaway required to light the first floor of this group of buildings continues along the east elevation of Building 14A, extending its total length to 426 feet, if interruptions for stair towers and Building 2A are disregarded.[3] Two stories high, Building 14A on its south elevation has nine bays, with an entrance in the fourth bay from the east. On the roof there are a 1-story, shingled superstructure and three iron skylights, which are north of the superstructure.
Building 26 2, 3 and 4 stories 86 x 142' 1950 Photographs 13, 15	The newest structure in the complex, Building 26 is a mid-20th-century brick and structural steel factory building with horizontal bands of steel sash. It has a projecting central tower on the south elevation. The north elevation is constructed of corrugated metal instead of brick for reasons unknown. Until this, the last building to be built, all buildings in this range were constructed with the same floor levels as their predecessors, back to Building 3 of 1842. In Building 26 only the second floor level is the same as in earlier structures. The other floors are reached by ramps. Buck and Buck, architects/engineers.
Buildings 3C, 3D, 3E 2 stories 39x20' & 35', 41x13' 1878 and ? Photograph 5A, 16	The front section of this grouping, Building 3C, is a 2½-story gable-roofed brick structure whose first floor is lighted by the moat. The east elevation has five bays of windows, most of them 6-over-6, under round-headed relieving arches. At the eaves, one course of headers is laid on the diagonal, several courses of brick project one wythe as a frieze and the window arches break into the frieze. Behind Building 3C, Building 3D is a 1-story brick structure with added frame second story, much altered, while at the rear Building 3E is a small, 1-story brick addition.
Buildings 5, 5A Two stories 37x24', 20x33' 1882 Photograph 17	The gable roof of Building 5, a 2-story, brick structure, is covered with diamond-shaped asbestos shingles. The east elevation, toward Main Street, consists of seven narrow bays separated by pilasters, each with 1-over-1 windows under segmental relieving arches. At the two south bays there is a double-width segmental arch over the second-floor windows. Below them a flat lintel makes an opening for a roadway leading to the mill yard. Building 5A is a connector between Buildings 5 and 11. On its south elevation it has four 6-over-6 windows in recessed bays under segmental arches.

Building 11
2½ stories over high basement
119 x 33'
1882
Photographs 18-20

Building 11 is different from others in the complex because it has a high brownstone basement, an original tower and dormers in its gabled roof. On the south elevation there are five bays east of the off-center tower and seven bays west of the tower. In the basement of rock-faced brownstone ashlar windows are 6-over-6. At the first and second floors windows are 2-over-2 under segmental arches and with brownstone lintels, such lintels being rare in the complex. These windows are set in 2-story recesses between piers. The eaves are defined by brick corbeling. The shed-roofed dormers, in every other bay, have 3-over-3 windows. The easternmost dormer is missing. A glazed double door is placed in the second bay from the east in the first floor, a similar door without glazing in the second bay from the west, and another door at the far south in the basement. Floor-level washers positioned between the windows tell of the existence of iron tie rods that are characteristic of the 19th-century buildings in the complex.

The gable-roofed stair and elevator tower projects 15 feet. Its front elevation has a double door and 2-over-2 window on each of three floors. Above, the gable end is treated as a pediment, embellished with a central pilaster and two tiers of raking corbeling.

On the north elevation of Building 11 the brownstone foundations, close to the brook, are without windows. In the upper stories this elevation is similar to the south elevation except it has no tower and except for its northeast corner, which is chamfered. The roof above the chamfer is angled to conform with the oblique wall. The west elevation has three bays. In its attic gable end the upper sash of the left and right windows are angled to fit the space, a design feature that is similar to the raking corbeling in the tower's gable end.

On the interior, the attic floor is suspended by rods from the roof framing, following the practice used for the fourth and fifth floors of Buildings 3, 3A and 3B. Thus, the second-floor space is a clear span (Photograph 20) in contrast with the basement and first floor where there are posts.

This building was used for wool storage.

Building 17A
One story
22 x 59'
Mid-20C, visual
Photograph 18

Building 17A is a contemporary, brick structure.

Building 17
2 stories
35 x 65'
1881
Photographs 18, 20

A 2-story, brick structure, Building 17 has a gabled roof covered with slate. Below the eaves several courses of brick project one wythe, forming a frieze. The segmental arches of the second-story windows break into the frieze. The fenestration appears to have been altered from time to time. At the first floor on the east elevation there are a group of four 6-over-6 windows and a group of two 6-over-6 windows, the latter at the left in a bricked-up former doorway that had a round arch. The second floor has four 6-over-6 windows and two loading doors. The south elevation is a solid brick wall except for a large, added, overhead door at the first floor and a double loading door at second floor. The eaves return briefly at the gable end. The west elevation has a pair of 6-over-6 windows at each end of both stories. Diamond shaped washers indicate the usual tie rods. The connector to Building 29 is frame, shingled.

Building 17B
1½ stories
55 x 37½, & 29½'
1937, 1943
Photograph 9

The filtration plant, Building 17B, is a combination of brick and concrete construction with low-pitched roof, built in two sections. Water is delivered from the millpond by a steel conduit of approximately 1-foot diameter to filtering beds on the upper level. Pumps on the ground floor propel the water to other factory buildings.

Building 25
1, 1½ & 2 stories
42 x 60', 73 x 46½'
1949
Photograph 21

The boiler house, Building 25, is brick with steel sash and a tall stack. Buck and Buck, architects/engineers.

Building Y1
One story, high
100 x 163'
1946
Photograph 22

Building Y1 is a 7-arc Quonset hut.

Building Y4
One story
20½ x 133½'
Mid-20thC, visual
Photograph 22

Building Y4 is a frame, hipped-roof garage for 13 automobiles, covered with asbestos-shingles siding.

Dam and penstock 1870 Photograph 1	The dam is constructed of stone, presumably from the quarry that was located nearby. Headgates to control the water flow into the penstock are at is southern end. The sluiceway into the penstock may be discerned in the aerial map. The penstock ran to Building 2A and presumably is still in place. Another penstock runs to the filtration plant, Building 17B, and is still functional.

1. A mill village of store, church, superintendent's house, workers' houses stands near the mill along Main Street and to the east.

2. Michael de Vito, East Windsor local historian, states that the quarry was located near the dam. (Interview December 22, 1984.)

3. At its north end, the areaway jogs around Building 3C. If this section is counted, the total length is 465 feet.

8. Significance

Period	Areas of Significance—Check and justify below				
prehistoric	archeology-prehistoric	community planning	landscape architecture	religion	
1400–1499	archeology-historic	conservation	law	science	
1500–1599	agriculture	economics	literature	sculpture	
1600–1699	x architecture	education	military	social/ humanitarian	
1700–1799	art	engineering	music	theater	
x 1800–1899	commerce	exploration/settlement	philosophy	transportation	
x 1900–	communications	x industry	politics/government	other (specify)	
		invention			

Specific dates See Item 7 **Builder/Architect** See Item 7

Statement of Significance (in one paragraph)

Criteria C (Architecture) and A (History)

The stone and brick buildings of the Broad Brook Company Factory Complex are excellent examples of 19th-century mill architecture, reasonably complete and unaltered. (Criterion C - Architecture) The origin, growth, changes in ownership and eventual demise of the enterprise are a classic case history, including the labor history, of a New England mill. (Criterion A - History)

Criterion C - Architecture

The Broad Brook Company's range of three 5-story masonry buildings along Main Street is a large and impressive artifact of 19th-century New England mill architecture. While the basic construction concept of load-bearing masonry walls with heavy-timber, slow-burning interior frame construction used in these buildings was standard practice, three features set Broad Brook apart from the usual mill buildings.

First, the use of stone as the primary building material for a factory was unusual in central Connecticut. As the 19th century progressed, earlier frame construction often gave way to the use of brick masonry, but stone mills were rare. The output of contemporary sandstone quarries located along the Connecticut River at Long meadow, Massachusetts, and Portland, Connecticut, primarily went into foundations and trim, and facing for row houses. Even though the stone used in the Broad Brook mill came from a nearby quarry, it must have been considerably more expensive than conventional frame or brick construction.

Second, the absence of stylistic architectural features from the first Broad Brook buildings is unusual. Customarily, the need for a stair and toilets tower was exploited to make an impressive statement of the mill's community importance by carrying the tower up to, say, a pyramidal roof, perhaps with clock faces along the way, giving the building a presence and sense of importance. At Broad Brook this was not done, the original stair towers and the low towers on the roofs being wooden. It seems unlikely that the motivation was cost driven, as the use of stone blocks for the basic material was costly and the use of stone eaves indicates a

willingness to employ expensive material for details. The buildings were strictly functional and utilitarian. It is to be noted that Building 3B, which generally followed precedent as to size and method of construction of Buildings 3 and 3A, was different in two respects. Its principal material for the walls was brick rather than stone, and in the fifth floor attractive dormers were built with segmentally arched windows and diamond-shaped recesses under their gable roofs.

Third, the fourth and fifth floors of the buildings are suspended by iron rods from the roof framing. The general idea of treating the upper floor differently from others was not unusual. In most 19th-century schools, for example, the auditorium is on the top floor thereby reducing the load that it otherwise would have been necessary to support above the major span. At Broad Brook the suspension scheme probably made for economy in construction and permitted the third floor to be free of posts. The posts on the fifth floor may play a part in the truss arrangement. Buck & Buck, consulting engineers, in their 1954 structural survey reported that, "Although this [roof] framing is customarily referred to as a truss it is not a statically determinate lay-out. We have investigated the various components as framed and find the 7" x 7" outside diagonal struts in compression are the controlling members."[1] The use of the upper floors from the time they were built for low live loads attests to the proper understanding by the original builders of their structural scheme. As the height of Building 3 was raised, c. 1880, the nature of its original roof framing is not known. The date of Building 3A, 1867, is the earliest that can surely be associated with the scheme of truss roof framing and suspended top floors.

Other buildings in the complex are built of brick and have normal stylistic architectural features. The late Greek Revival touches of Building 4 are distinctive. The motif of segmental window arches interrupting a frieze, found in Building 3C is repeated in Building 17. The placing of windows in a recessed area between pilasters, a common practice in post-Civil War building, is represented in the complex in Buildings 3B, 4 and 11. Building 5 is different from the others because of its narrow bays and double-width segmental arch above the windows over the roadway. Building 11 at once has more style than others in the complex and is the most conventional because of its front, projecting tower. The tower both expresses conventional mill planning and gives an opportunity for an architectural statement. The corbeling and central pilaster of the tower's gable end reflect the contemporary popularity of the Neo-Grec style. The sympathetic design of the building's west gable end, the chamfer of its northeast corner and the shed-roofed dormers make this one of the most architecturally interesting buildings in the complex. The diversity of these other buildings contrasts with the uniformity of the principal buildings, 3, 3A and 3B.

The 20th-century buildings, 14, 14A, 26, 29 and the powerhouse, demonstrate the development of industrial building methods over the years 1920 - 1950. The only use of concrete is found in a portion of Building 29; other buildings use brick in combination with steel. The flat planes and broad window bands of Building 26 and the ruggedness of the powerhouse are particularly successful from the point of view of design as well as function.

Criterion A - History

This location on Broad Brook in East Windsor was the scene of the development of waterpower since earliest colonial days. In the first quarter of the 19th century a gristmill, sawmill and tannery were in place there, making use of the power in continuation of the early practice. These properties and their dams and waterpower rights were purchased starting in the 1830s by Epaphras L. Phelps and Bethuel Phelps, who formed the Phelps Manufacturing Co. for production of woolen goods. They began operations in existing buildings and then in the early 1840s constructed Building 3. In the late 1840s Phelps Manufacturing Co. experienced financial difficulties and was succeeded by the newly-organized Broad Brook Company. The record of the financial difficulties and the change in ownership as reflected in the East Windsor Land Records affords a window on industrial and financial history of the times that is both revealing and tantalizing.

Epaphras L. Phelps and Bethuel Phelps acquired the several component properties in the 1830s and 1840s individually. Epaphras L. deeded his holdings to Bethuel Phelps who apparently started operations and built Building 3. Then, in 1847 Bethuel Phelps deeded the entire holdings for $140,000 to the Phelps Manufacturing Co., which had five stockholders. Bethuel Phelps was the largest stockholder, owning 2679 out of a total of 5600 shares.[2] Epaphras L. Phelps was not a stockholder. In 1848 Phelps Manufacturing Co. made a first mortgage[3] for $12,225 to the Farmers and Mechanics Bank and Alexander H. Pomeroy of Hartford, pledging as collateral its real estate, machinery and inventory, all of which are tabulated in detail and at great length. This complete detail of machinery and inventory is a valuable record of what was required for operation of a woolen mill in the 1840s. It is worthy of note that at this time the mill already had an 80 horsepower steam engine.[4]

Simultaneously, Phelps Manufacturing Co. made a second mortgage[5] for $24,000 to Harvey Holkins, the second largest stockholder, subservient to the first mortgage but pledging the same collateral. And there was a third mortgage,[6] similarly worded, to Epaphras L. Phelps for $200,000. Epaphras L. Phelps had endorsed many notes, that are tabulated, for Phelps Manufacturing Co. While the mortgages are long and detailed, they raise as many

questions as they answer. Why was Epaphras L. Phelps not a stockholder? What mis-judgements or mis-management caused Phelps Manufacturing Co. to fail? The fact that the record is murky is confirmed by action taken a century later in 1954 by United Technologies who secured a court judgement against "the heirs, representatives and creditors of Epaphras L. Phelps et al...quieting and settling the title to certain real estate in the Town of East Windsor."[7]

The Broad Brook Company was organized by six men, three of whom were George Beach, George Beach Jr., and Bryan E. Hooker. Beach and Hooker interests are listed among the creditors recited by the Phelps mortgages, and it appears that the Broad Brook Company was a vehicle whereby the creditors took over the Phelps assets. George Beach was the first president. The Beach family long was active in several financial and industrial Hartford-based enterprises. The Beach family continued its ownership interest in the Broad Brook Company into the 20th century, longer than any of the other organizers.

Under the new ownership, operations continued and grew and new buildings were constructed, as described in Item 7. The mill was a large supplier of woolen goods to the Union Army during the Civil War. A major event occurred in autumn 1869 when a great flood, presumably caused by a seasonal hurricane, took out all dams and bridges on Broad Brook from above the mill to the Scantic River. As the mill was still largely dependent on waterpower, this catastrophe caused a prolonged shutdown and occasioned the purchase of a 250 HP steam engine, from Woodruff & Beach of Hartford. The present dam at the bridge was built at this time, completed in 1870. Waterpower continued to augment the use of steam.

In 1895 controlling interest in the mill was purchased by Ogden & Brook, a firm of English woolen goods merchants. They sent Benjamin S. Hanson from Huddersfield to manage the operation. Arrival of managerial skill from England half a century after the mill was started is in contrast to the not unusual practice at New England textile mills of starting operations under the direction of experienced management brought for the purpose from England. During the new manager's brief tenure a 400 HP steam engine was installed, and at his untimely death, in 1898, James Brook, a principal in Ogden & Brook, came to take control of operations. James Brook (1848-1918) and his son, Harry C. Brook, were in charge of active management of the company until 1937. Electric lighting was introduced into the mill in 1902.[8]

During these years the principal products were woolen cassimeres, a smooth, twilled cloth, and worsted coatings. Employees numbered over 300. The record of equipment purchases shows that the company kept up with the times, but there is no indication of innovative production techniques

being originated at Broad Brook. In 1849 the mill had 4900 spindles, 102 looms and 250 employees.[9] In 1893 the company had 5280 spindles and 110 broad looms.[10] In 1923 the figures were about the same.[11] The period of growth had been early in the company's history.

On August 30, 1919, the directors of Broad Brook Company wrote a letter to stockholders advising that an offer had been made for the shares, that the directors planned to tender their shares, and that the directors advised all other stockholders to do the same. The stated reason for selling was the need for new capital expenditures for which the proposed new ownership had the necessary financial resources and the company in its existing situation did not. Contributing factors may have been the recent death of the president, James Brook, and the fact that profit in 1918 was only $6,513, while operations in 1919 resulted in a net loss of $12,359. Who the stockholders were in 1919 is not known, but a list does exist for 1909. In 1909 there were 16,000 shares outstanding, owned by 170 shareholders. Beach interests still owned 3,547 shares. Ogden & Brook interests owned 3,262 shares.

Enough shares were tendered so that control shifted hands in 1919. The new owners were interests represented by William Weise & Sons of New York and Fisher Body Corporation of Detroit. William Weise & Sons were sales agents; Fisher Body was a user of automobile upholstery fabrics. Once again, control of operations was in the hands of those primarily concerned with marketing and consumption rather than production.[12]

In 1919 a 5-day, 48-hour work week was established. Whether this was before or after the change in management that occurred in 1919 is not clear, but in any event in 1921 the 6-day, 54-hour week was resumed. Employee relations appear to have been about average over the years. Brief strikes by weavers, an important skill category, took place in 1912, 1915, 1920 and 1932, and in 1934 all employees went on strike as part of the widespread job actions in the textile industry of that year. Employment statistics for the years 1937-1952 are set forth in attached Table 1.[13]

The record of power supply for the mill during these years is a mixed picture. In 1927 the first electrically driven looms were installed. With individual electric motors at each loom, line shafting and belting became obsolete, and were removed at least in part. In 1928 a new 75 HP water wheel was purchased, and in 1952 a 600 HP rebuilt Corliss steam engine was reported still in place. Such combination of power supplies perhaps was determined on an ad hoc basis.

The financial record during these years is summarized by the graphs, attached. From a loss of $178,000 in 1932, operations improved to

a maximum profit in 1947 of $683,000. Not to be overlooked is the fact that no dividends were paid out the first 17 years. The years of World War II and the post-war years clearly were the most favorable. As in the Civil War years, the Broad Brook Company produced substantial yardage for the United States Armed Forces during World War II. 1942 was the year of most yards sold in the company's history, 2,346,000 yards. 1951 was the year of largest sales in terms of dollars, $8,676,000. The breakdown of yardage sold is of interest, for instance in 1952:

General Motors	703,743 yards
Chrysler	49,000 yards
U. S. Government	876,740 yards
	1,629,483 yards

In light of the decade of favorable operations in the 1940s, and giving consideration to the upper curve in the accompanying graph of financial results, the decision to construct Building 26 in 1949-1950 is understandable. It was the largest building to be constructed since Building 3A in 1867. But conditions changed radically and rapidly. The minute book for the late 1940s/early 1950s is not at hand, but the directors' meetings must have reflected the change that occurred in only a few years from the prosperous conditions to the expectation of disaster. One change that undoubtedly happened was the change in automobile styling from the use of cloth upholstery to vinyl, a devastating change for Broad Brook. In larger context, the woolen industry all over New England was drawing to the close of its long history. Changing tastes, more efficient production facilities in the southern part of the United States, restrictive labor union practices in New England and more agressive investors and managers in the south, among other factors, came together to bring an end to textile manufacturing in New England in general and the processing of wool foremost and in particular.

The history of the Broad Brook Company is continuous from the 1830s to the 1950s. The record contains good detail on the financial, mechanical and architectural aspects of the enterprise in its several vicissitudes. This historical record furnishes valuable insight toward understanding the development and demise of a significant Connecticut industry.

The final day of operations of the Broad Brook Company was February 22, 1954. The Hamilton Standard Division of United Technologies bought the property in 1954, and conducted manufacturing operations in the buildings for about fifteen years, before selling the complex in 1977. In recent years industrial tenants have occupied part of the space.

1. Buck & Buck, "Report on Structural Survey...," 1954, Building No. 3A, Roof.

2. East Windsor Land Records, volume 28, page 40 (EWLR 28/40), March 4, 1848, 29/117, February 25, 1947

3. EWLR 28/44, March 4, 1848.

4. Benjamin S. Hanson, "A Condensed History of the Wool Textile Factory in Broad Brook," 1950, p. 3.

5. EWLR 28/45, March 4, 1848.

6. EWLR 28/47, March 4, 1848.

7. EWLR 65/525, June 23, 1954.

8. Electricity was not brought to company-owned employee houses until 1935.

9. New England Mercantile Union Directory, 1849, part 6, Connecticut

10. Davison's Blue Book Textile Directory, 1893, p. 72

11. Davison's Blue Book Textile Directory, 1923, p. 407.

12. In 1939 W. A. Fisher was president.

13. In 1952 production supervisors were paid in the range of $5500/7800, the superintendent was paid $20,579, the treasurer $22,733 and the president (Chester A. Wiese) $50,000.

9. Major Bibliographical References

See continuation sheet.

10. Geographical Data

Acreage of nominated property 10.6

Quadrangle name Broad Brook Quadrangle scale 1:24000

UTM References

	Zone	Easting	Northing
A	18	703480	4643270
B	18	703120	4643500
C	18	703110	4643460
D	18	703470	4643020
E	18	703370	4642960
F	18	703300	4643010
G	18	703310	4643100
H	18	703280	4643100

Verbal boundary description and justification I 18 703 300 4643280

The nominated property is lot 8 on town map 18A plus the dam and connecting section of the street. The boundary is shown by the dotted line on aerial map. For boundary justification, see Item 7.

List all states and counties for properties overlapping state or county boundaries

state	NA	code	NA	county	NA	code	NA
state	NA	code	NA	county	NA	code	NA

11. Form Prepared By

name/title David F. Ransom; edited by: John Herzan, National Register Coordinator

organization Architectural Historian date November 8, 1984

street & number 33 Sunrise Hill Drive telephone 203 521-2518

city or town West Hartford state CT

12. State Historic Preservation Officer Certification

The evaluated significance of this property within the state is:

___ national ___ state X local

As the designated State Historic Preservation Officer for the National Historic Preservation Act of 1966 (Public Law 89-665), I hereby nominate this property for inclusion in the National Register and certify that it has been evaluated according to the criteria and procedures set forth by the National Park Service.

State Historic Preservation Officer signature

title Director, Connecticut Historical Commission date 3/13/85

For NPS use only

I hereby certify that this property is included in the National Register

Deloris Byers date 5/2/85

for Keeper of the National Register

Attest: date

Chief of Registration

Barlows Insurance Surveys, New York, 1876, Survey 4227, Broad Brook Woolen Co.

Broad Brook Company materials at Connecticut Historical Society:

Articles of Association 1848
Act of Incorporation and By-Laws of the Broad Brook Co. (Hartford: Elihu Geer, 1849)
Minutes of meetings of stockholders, directors' reports, 2 vols., 1906-1938
Contracts and legal papers, 1885-1960
By-laws and statistics, Broad Brook Co., including 1940 map, 3 identical volumes
Ledgers, 11 volumes, 1848-1953
Report on Examination of Statements, 1934-1952
Federal, State and Local Tax Returns, 1915-1959
Army-Navy Award for Excellence with presentation programs, photographs, recordings
Centennial Guest Book
Birdseye view of Broad Brook Co., Lithograph, G. H. Bailey, Boston, not dated

Brook, James, Encyclopedia of Connecticut Biography, New York: American Historical Society, 1917, v. 7, p. 86.

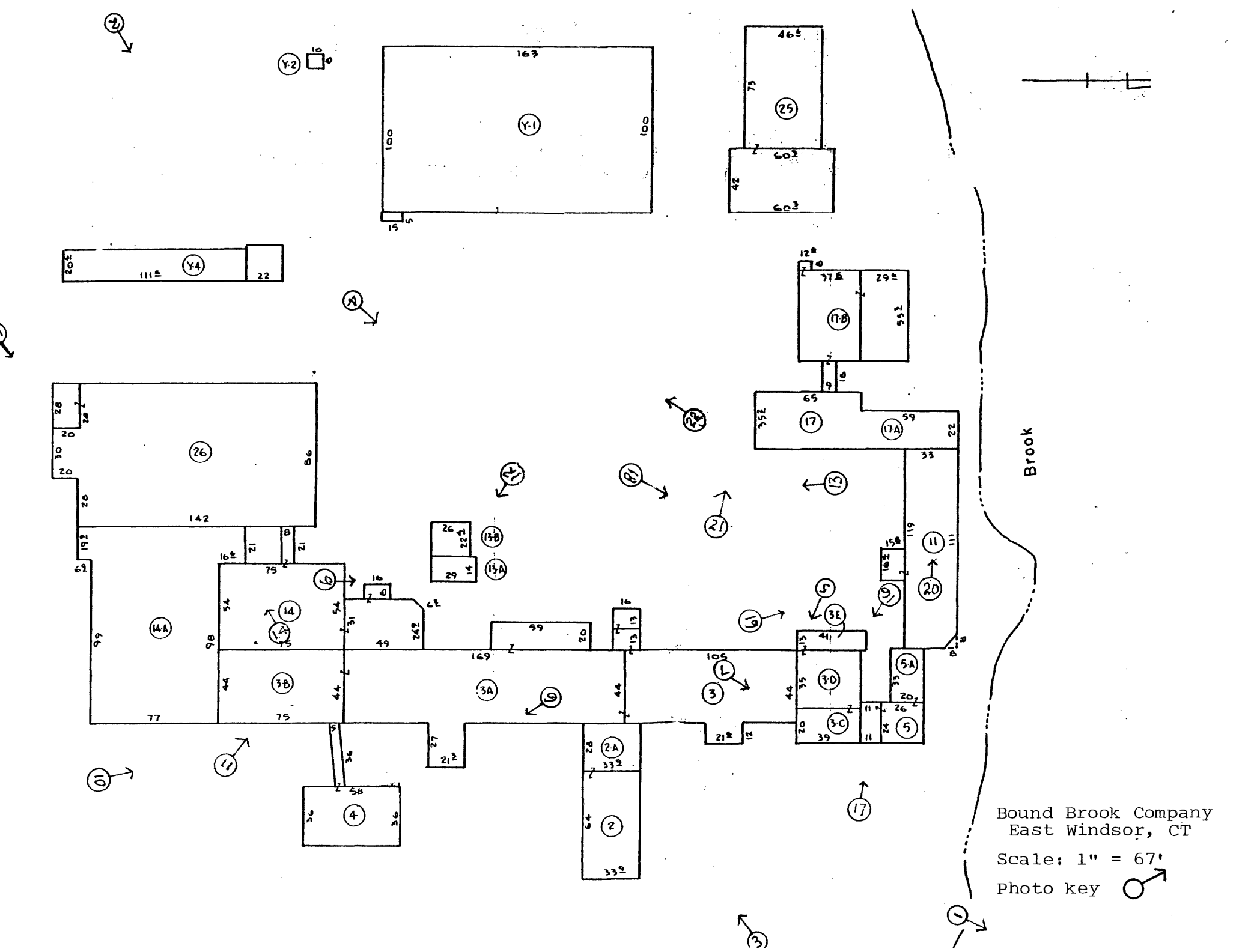
Buck & Buck, "Report on Structural Survey of Buildings to Remain at Broad Brook Plant," 1954. Copy in author's possession.

Davison's Blue Book Textile Directory, 1893, 1923.

East Windsor Land Records, 27/410, 27/411, 27/422, 27/427, 28/40, 48/44, 28/45, 28/47, 28/49, 28/50, 28/59, 29/117, 29/173, 29/174.

Hanson, Benjamin S., "A Condensed History of the Wool Textile Factory in Broad Brook," 1950. Copy in author's possession.

New England Mercantile Union Directory, 1849, part 6, Connecticut.


Y-2
Y-1
Y-4
25
17-B
17
17-A
26
14-A
14
3-B
3A
3-D
3-C
3E
5-A
5
4
2-A
2
Brook
Bound Brook Company
East Windsor, CT
Scale: 1" = 67'
Photo key

Broad Brook Company
East Windsor, CT

Note: The following two pages are taken from Barlows Insurance Surveys of 1876. The numbers given the buildings on these two pages are different from the numbers given the buildings on the preceding sktech map. The numbers on the sketch map have been commonly used in the 20th century, and are the numbers used in Item 7.

No. 4227.

BROAD BROOK COMPANY,

BROAD BROOK, EAST WINDSOR, CONN.

OWNED—By Company.

GOODS—Fancy Cassimeres.

STOCK—All Wool; no Cotton. Work up their own hard ends and headings.

CAPACITY—Thirteen sets.

POWER—Water and Steam.

EXPOSURE—See plan. June 7th, 1876. J. M. B.

DESCRIPTION.

No. 1—MAIN BUILDING & WING—Built 1844-1846. HEIGHT—four stories and basement. SIZE—169x44 feet; wing, 106x44 feet. WALLS—stone; fair iron doors in division wall, which is only eight inches above roof of wing. ROOF—slate and shingle. CORNICE—wood. SCUTTLES—several. LADDERS—with platforms. FLOORS—ordinary; not suitable for flooding. CEILING—has been torn out opposite sprinkler pipes STAIRS—in towers. ELEVATORS—inside, open.

Occupation—Basement, wheels, weaving, spinning and fulling. First story, weaving. Second story, jack spinning and dressing; cards. Third story, jack spinning. Fourth story, jack spinning. Loft, spread wool. **Wing**—basement, fulling and cloth room. First story, weaving. Second story, carding. Third story or attic, wool for cards, duster, spinning.

Finishing Room—North end of wing. One and two stories, brick, tin roof. Flannel burling in second story. Skylights in roof of one story part. Open to wing.

No. 2—Boiler and Dry House—One story, attic and basement, brick, slate roof. Open to mill. Brick division wall near boilers. Open drive-way near mill. Boiler smoke flue passes to end of building. Slatted floors; contains tenters for cloth drying. Basement, old machinery; wet down logwood.

No. 3—Dye House—One story, stone, shingle roof.

No. 4—Machine Shop—Two stories, brick, slate roof. Inside stairs. Small 4½-horse-power engine, with upright boiler, in brick addition, for use when mill is not running. Carpenter shop in second story; lumber in attic. Blank wall toward **No. 5.** Iron door in second story.

No. 5—New Store House—Two stories, brick, slate roof. Blank wall towards **No. 4**, with iron door in second story. Brick partition wall. First story, wool and drugs. Second story, store box stock; nail together boxes.

No. 6—

No. 7—Wool House—One and one-half and two stories, brick, shingle roof.

No. 8—Picker House—Two stories, brick, corrugated iron roof.

No. 9—Engine House—One story, brick, gravel roof. Wood-cased band to **No. 1.** Wood door to **No. 2.**

No. 10—Gas House—One story, brick. Frame gasometer and shed.

No. 11—Office Building—One story, frame.

No. 12—Bleach House—One story, frame.

SPECIAL FEATURES.

Heating—Steam, chiefly in suspended pipes.

Lighting—Gas, made on premises, from *treated oil*; the latter costs eighteen cents per gallon, as compared with twelve for *crude oil*. Tiffany gas stove; air pump.

Watchmen—Two nights and a day watch; Buerk Watch. Signal oil in lantern.

Pickers—In **No. 8**; floor brick; power by shaft. Brick partitions to gauze room. Lumper, burr and common pickers. Second story contains duster and picker, and rag picker for hard ends; corrugated iron roof; iron and wooden rafters. Open stairway between stories. Sprinklers, casks and buckets. Gas for lighting.

Drying—By *spreading in* **No. 2.** Iron slats above boiler flue.

Oils—Lard oil, sal soda and water on stock.

Waste—Sacked and sold; taken daily from mill.

Hours of Work—Sixty-six per week.

Boilers—Two large flue boilers, and one tubular; ample space overhead. Fuel, coal.

FIRE APPLIANCES.

Fire Pumps—Two of the largest size Fales & Jenks'; driven by friction clutch. Valve covers are removed at night. Are now repairing flume and wheels, and will probably change the location of the pumps, improving their accessibility. Small hose at steam pump at boilers.

Vertical Pipe—None.

Tanks—Two in attic.

Hydrants—See plan.

Hose—Five hundred feet; patent nozzles.

Sprinklers—Hall's system in upper stories of **Nos. 1** and **2.**

Casks & Buckets—A good supply.

Steam Jets—None.

Extinguishers—Four.

Lightning Rods—Yes.

Ladders—Wood and iron, with platforms.

Auxiliary Aid—None.

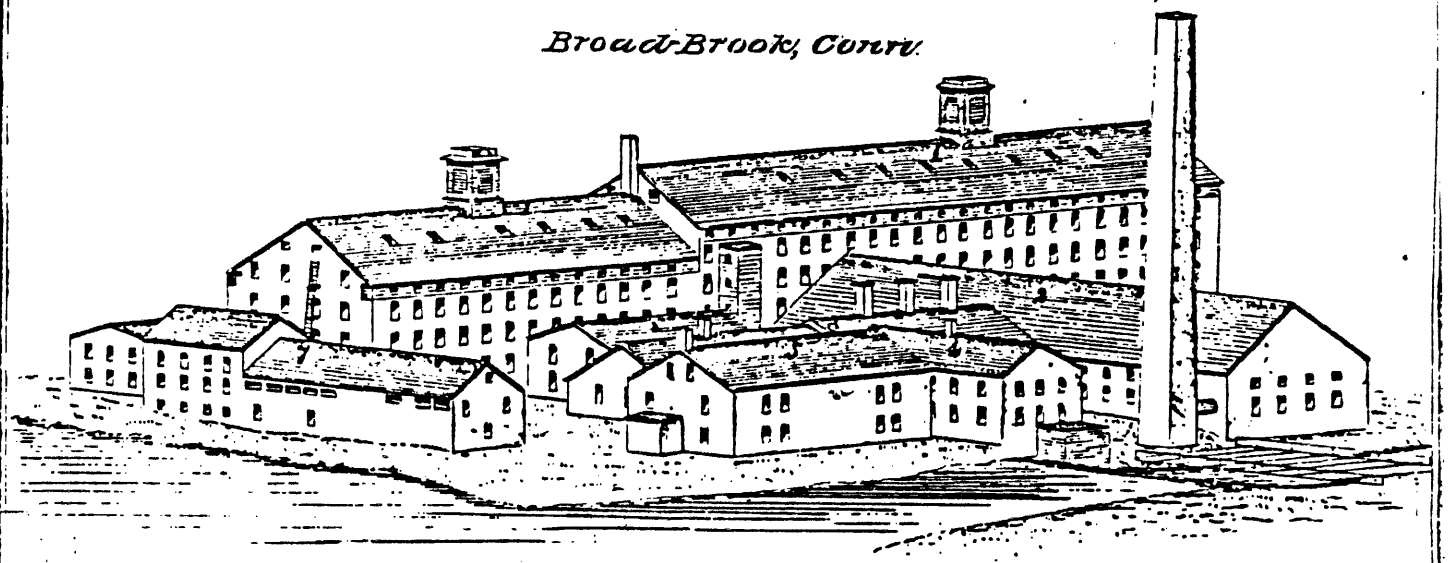
CHARACTER.

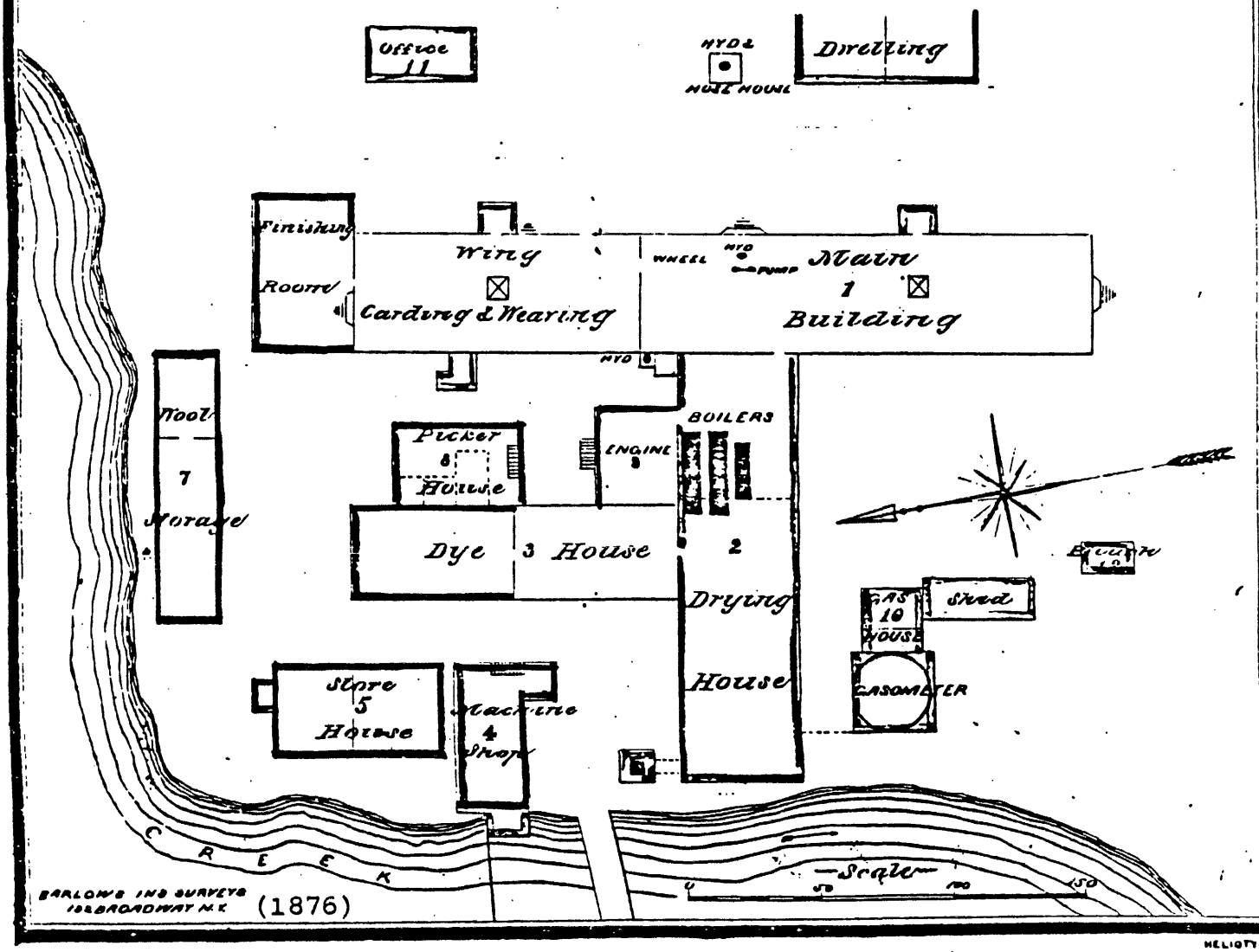
STOCK—Of good quality. Buildings well advanced in years. Floors considerably worn; some have been renewed. Clean by sweeping. Considerably improved since former survey. Management practical and energetic, and business probably has been successful.

4227.

BROAD-BROOK WOOLEN CO,

Broad-Brook, Conn.

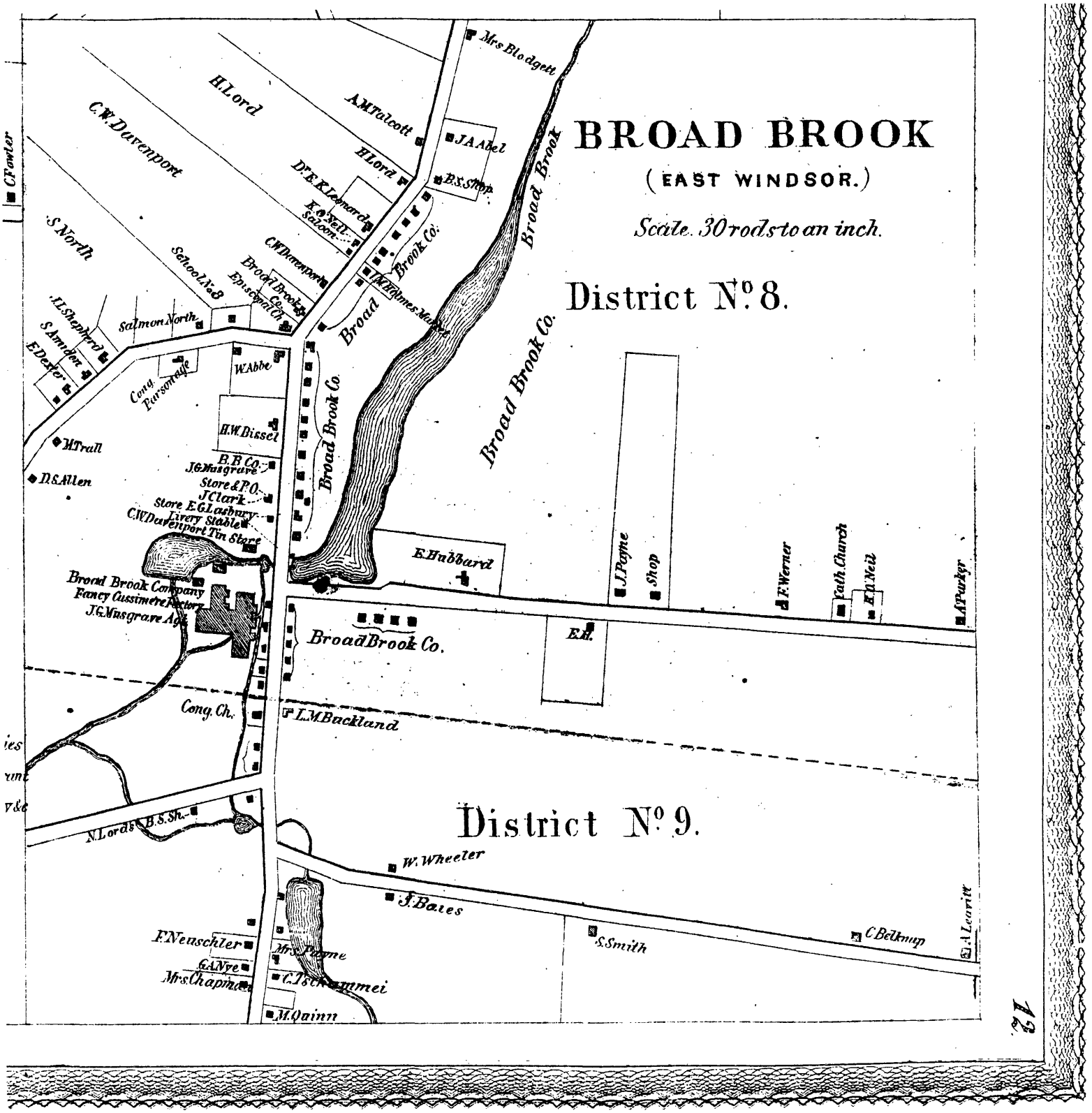




BARLOW'S INS SURVEYS
181 BROADWAY N.Y.

(1876)

HELIOTYPE



Atlas of Hartford City and County, 1869


Broad Brook Company
East Windsor, CT
Aerial Map Scale: 1" = 111'
N
STREET
MAIN
STREET
61.4
131.35
117.11
60
61.59
87.97
138.2
16
127