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NPS Form 10-900 OMB No. 1024-0018

United States Department of the Interior
National Park Service

National Register of Historic Places Registration Form

This form is for use in nominating or requesting determinations for individual properties and districts. See instructions in National Register Bulletin, *How to Complete the National Register of Historic Places Registration Form.* If any item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instructions.

RECEIVED 2280
MAY 6 2016
Nat. Register of Historic Places
National Park Service

1. Name of Property

Historic name: American Brewing Company Plant

Other names/site number: Providence Brewing Company, Green's Moving and Storage, Capital Records Management

Name of related multiple property listing:

N/A

(Enter "N/A" if property is not part of a multiple property listing

2. Location

Street & number: 431 Harris Avenue

City or town: Providence State: Rhode Island County: Providence

Not For Publication: ☐ Vicinity: ☐

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act, as amended,

I hereby certify that this _x_ nomination ___ request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60.

In my opinion, the property _x_ meets ___ does not meet the National Register Criteria. I recommend that this property be considered significant at the following level(s) of significance:

___**national** ___**statewide** _x_**local**

Applicable National Register Criteria:

___**A** ___**B** _x_**C** ___**D**

Edward F. Sanderson 5/9/2016

Signature of certifying official/Title: **Date**

RI Historical Preservation & Heritage Commission

State or Federal agency/bureau or Tribal Government

In my opinion, the property ___ meets ___ does not meet the National Register criteria.

Signature of commenting official: **Date**

Title : **State or Federal agency/bureau or Tribal Government**

4. National Park Service Certification

I hereby certify that this property is:

✓ entered in the National Register

___ determined eligible for the National Register

___ determined not eligible for the National Register

___ removed from the National Register

___ other (explain:) _____

for Elson K. Beall 6.21.16

Signature of the Keeper Date of Action

5. Classification

Ownership of Property

(Check as many boxes as apply.)

Private:	x
Public – Local	
Public – State	
Public – Federal	

Category of Property

(Check only **one** box.)

Building(s)	x
District	
Site	
Structure	
Object	

Number of Resources within Property
(Do not include previously listed resources in the count)

Contributing	Noncontributing	
3	3	buildings
		sites
		structures
		objects
3	3	Total

Number of contributing resources previously listed in the National Register N/A

6. Function or Use

Historic Functions
(Enter categories from instructions.)
INDUSTRY/manufacturing facility
INDUSTRY/industrial storage

Current Functions
(Enter categories from instructions.)
COMMERCE/professional
VACANT/NOT IN USE
OTHER

7. Description

Architectural Classification
(Enter categories from instructions.)

LATE VICTORIAN/Romanesque Revival
LATE 19th and 20th CENTURY REVIVALS/Beaux Arts

Materials: (enter categories from instructions.)
Principal exterior materials of the property: BRICK, STONE, CONCRETE

Narrative Description
(Describe the historic and current physical appearance and condition of the property. Describe contributing and noncontributing resources if applicable. Begin with **a summary paragraph** that briefly describes the general characteristics of the property, such as its location, type, style, method of construction, setting, size, and significant features. Indicate whether the property has historic integrity.)

Summary Paragraph

Located in a densely-settled industrial area west of downtown Providence, Rhode Island, the American Brewing Co. plant occupies a corner parcel of approximately 1.5 acres bounded by Harris Avenue on the south and Eagle Street on the west. The property includes three contributing buildings: a 3-story, brick Main Building operated as an industrial-scale "gravitation brewery" from 1892 to 1922, a ca. 1900 Ice Plant and a 1911 Boiler House. Three connected garages along the east edge of the property built in the mid-20th century and unrelated to the brewery operation are non-contributing.

The main building was designed in 1891-2 by Philadelphia-based Adam C. Wagner (1860-1935), a nationally-recognized architect/engineer/brewer who also supervised construction. While the interior organization of Wagner's breweries represented the most up-to-date expression of late 19th-century brewery design, the exterior presented highly-elaborated Romanesque and Beaux-Arts detailing. The original Wagner design was enlarged significantly in 1911 with infill and expansion at the north end of the building and the relocation of the original interior boiler room to a freestanding, building along the east property line. Despite post-brewery exterior alterations

to the Main Building, the three American Brewing Co. buildings exemplify the scale, interior layout and organization of industrial-scale, mechanically-cooled, "scientific breweries" of the late 19th century.

Narrative Description

Main Building (1892, 1911, Contributing)
Adam C. Wagner, architect

Note: parenthetical numbers in the following paragraphs refer to current room number designation in the adaptive reuse plan. See Additional Information *Figure 2.*

General. The Main Building is a 170' by 120' massive, three-story (approximately 60' in height), brick structure drawing predominantly from German Romanesque Revival architectural traditions. The exterior surfaces are brick with rough-faced granite trim and elaborate brick corbeling extending, in some cases, down much of the vertical face of regularly-spaced pilasters. A granite beltcourse demarcates the ground floor from the floors above. Two continuous, corbeled brick ledges occur at the termination of the windows' round arches. The building foundation is rough-faced granite ashlar blocks at grade with wetlaid rubble below.

Distinct from the more utilitarian west and north elevations (Eagle Street and the rear), the south and east walls present a highly-ordered interplay of Romanesque windows, pilasters, and corbeling of the pilaster capitals in the German Romanesque style. As built, the brick walls were pierced by regularly-placed tall Romanesque arch window openings of two different sizes and set in brick-trimmed recesses. Although predominantly brick-filled in the mid-20th century, the original window openings described above are plainly discernible in the surviving brick trim and granite sills. In many cases, the round-arch wood transom sash has survived while the lower part of the window opening is bricked-in. Industrial steel sash, 9-light windows were inserted in the bricked-in areas.

The historical main entrance to the offices is still in use today. This entrance opens along Harris Avenue to Room 101 and comprises a modern glass and aluminum door set in a recess and accessed by granite steps. It is framed within a large, shallow arch, the uppermost portion of which held a hemispheric, wood-frame, 8-light window. Although bricked-in on the exterior of the building, this original window survives in place in Room 202A.

There are four modern entrances on the east elevation. The southernmost is a steel freight door set in an original arched window opening (now predominantly bricked in). Moving northerly, the second is a steel pedestrian door set to one side of a now bricked-in arch. The third is a double steel door also set in a bricked-in opening. The northernmost appears to be a post-brewery opening cut into a former blank wall.
The focal point of the Main Building is the southwest corner, where a Harris Avenue doorway set in a blind arch opens to the original Office and Malt Mill section of the building. The Malt

Mill, Brew House and Engine/Refrigeration Room sections of the building presented multi-light wood-frame windows. The first floor windows were roughly 20' high by 10'wide. Upper windows extending from the second floor to the cornice were about 28' high and of the same width as the lower floor windows. These permitted a view of the brewery's inner workings, particularly the polished copper brew kettle and mash tun of the Brew House and the mezzanine structure of the plant's steam engine and refrigeration equipment in the Engine/Refrigeration House. The second and third floor windows of the Brew House and Engine/Refrigeration areas present a sequence of smaller, paired Romanesque windows.

As built in 1892, a hipped turret surmounted the Office and Malt Mill with water tank enclosures and an arcaded cupola vent over the Brew House. These roof features likely were damaged or destroyed in the Hurricane of 1938. Elimination of these structures coincided with removal of significant architectural features along the roofline, including a gabled parapet rising over the center bays of the Stock House and a highly-elaborated section of the Malt Mill roofline that included six oculi and a bracketed cornice. The roof is now generally flat, supporting cellular telephone equipment. A mechanical room in the basement houses the building's heating system as well as electrical service and sprinkler controls.

In the late 20th century the original exterior brickwork was painted red; granite trim was left unpainted.

The Main Building comprises seven separate "houses" devoted to essential phases of industrial brewing of the period, as shown in Figure 1. These are labeled A through G.

A. Located at the southeast corner of the plant and occupying the basement and three upper floors, this part of the building included the **Malt Mill** and first floor offices.

B. Immediately north of A, a three-story **Brew House.**

C. Occupying the southwest corner of the Main Building, a three-story (plus basement) **Stock House.**

D. Adjoining the Stock House, a three-story (plus mezzanine and basement) **Lager Racking Room**.

E. In the northwest corner of the Main Building, a deep single-story **Lager Wash House.**

F. In the northeast corner of the Main Building, a three-story **Drying House**.

G. Located north of B, an **Engine/Refrigeration Room** originally housing steam-powered compressors on the first floor and condensers on a second-floor mezzanine.

Because the brewing process progressed in this gravity-fed sequence and often relied on communication between vertical spaces or "cores" (as opposed to the more typical industrial flow over large, horizontal floors), the building's interior is described by core. The seven cores

of the Main Building are described in the general order of their sequence in the brewing process, with notes about the uses of the spaces where it is directly related to their form and/or relative arrangement. The 1900 **Ice Plant** and 1911 **Second Boiler House** are described separately. Room numbers assigned in the current adaptive reuse program appear in parentheses, and typically begin with the floor number.

A. Malt Mill and Offices (1892)

This core comprises rooms 201, 202, 202A, 202B, 299 (occupying both 2nd and 3rd floor space), and 301. Rooms 101 and 103 housed the brewery offices.

Historical function. Although some late 19th-century breweries germinated their own malt from furnished barley, many purchased partially germinated and dried barley, processing it in a roller grinding process similar to that used in commercial wheat milling. This was the case with American Brewing Co. In this part of the brewery, malt was milled in preparation for mashing, i.e., being boiled with water in the mash tun. Malt was finely milled in a process that eventually delivered it gravitationally to the lowest level of the Malt Mill. At that point, a conveyor system delivered the milled malt to the Brew House mash tun. A surviving artifact of the milling process is room 299, a two-story open shaft extending from the second to the third floor of the Malt Mill. Within this room, a large hopper and grinder received dried barley at the top and produced finely-milled malt at the floor of the room or in room 202A/202B. When ready for mashing, a conveyor (within room 299) likely transferred the milled malt up to room 301 for transfer to the mash tun (in room 302).

Current conditions. The core that housed the Malt Mill and Offices is dominated by room 299, occupying the second and third floors and flanked by rooms 201-202 and 301 (on the second and third floors, respectively). The low-ceilinged rooms 202A and 202B (more accurately part of the first floor, as their ceilings are the bottom of the second floor) are under rooms 299 and 201-202 and over office rooms 101 and 103.

As noted above, room 299 is essentially a two-story shaft. It has bare brick walls and a partial floor inserted at the third-floor level for mounting of telecommunications equipment.[1]

Rooms 202A and 202B are two, small low, jack-arch ceilinged rooms of undetermined function in the malt mill and accessed by a steel ship stairway descending from room 201. Several roughly 24” by 36” iron-lined orifices (likely associated with a malt kiln) are set in the walls within room 202A.[2] Room 202A (the east chamber) measures approximately 17’ by 18’; room

[1] A cutaway insurance drawing of the Weisbrod and Hess Oriental Brewery (Philadelphia), another Wagner-designed malt mill of the same period, shows this general configuration. Source: http://www.philageohistory.org/rdic-images/view-image.cfm/HGSv27.2561-2562 (accessed October 28, 2015).

[2] These orifices are found in rooms 201, 202A and 301. They appear to be charred and are likely related to the malt kiln, a preparatory drying process in the malt mill. Four steel studs along the lower surface suggest an attachment point for malting machinery.

202B (the west chamber) measures approximately 14' x 17'. The two rooms are divided by a wood partition. Both chambers have an approximate ceiling height of 6'.

Rooms 201 and 202 are neighboring rooms separated by a frame partition. Room 201 is a narrow (approximately 6' by 18') space that appears to have been subdivided from an original larger room for use as office or administrative space. A low platform supports a wood plank floor; walls are wainscoted with beadboard sheathing above. A small bathroom is at the south end of the room. Room 202 (approximately 12' by 18') has a concrete floor and stuccoed brick walls (except for a vertical plank wall shared with room 201). Windows in rooms 201 and 202 are mid-20th-century 9-light steel sash.

Room 301 (approximately 18'-square) is a high-ceilinged room with three stuccoed-brick walls and a south wall of plain brick. Two windows are 9-light steel sash. Steel I-beams inserted at ceiling height appear to date to the relatively recent construction of a rooftop telecommunication room accessible from Brew House room 302 (q.v.).

Below the Malt Mill, rooms 101 and 103 housed the ground-floor brewery offices. These offices represent late 20th-century remodeling, including suspended ceilings, carpeting and wood paneling.

B. **Brew House** (1892)

This core comprises five rooms: 002, 003, 104, 203 and 302.

Historical function. The uppermost floor of the Brew House (room 302) likely housed the mash tun and the upper half of the brew kettles. As built in 1892, Wagner's design provided for one 300-barrel brew kettle. It is likely that the 1911 expansion—which tripled the annual capacity of the brewery from 70,000 to 200,000 barrels[3]—necessitated the installation of two additional kettles. The brew kettles were installed in the floor in such a way that the upper half (accessible within room 302) received the wort gravitationally from the mash tun. The lower half of the brew kettle was accessible from below in room 203. The resulting wort was then pumped to cooling vats in rooms 303 and 304 (see Stock House, below) in preparation for fermentation.

A.C. Wagner's April 1892 press release to the *Western Brewer* (see *Additional Information*) noted that the cellar room of the Brew House [now rooms 002 and 003] was to be used for lagering. In that sense, the historical function of this space is more closely related to that of the Stock House.

Current conditions. Each of the three aboveground floors of the Brew House comprises about 1,700 sq. feet of space. Wide doorways provide access to neighboring rooms. Walls are painted

[3] This is based upon the mathematical assumption that if a single brew kettle produced 70,000 barrels annually, three kettles of the same capacity would have been required to produce 200,000 barrels. Although the 1921 Sanborn Map showed some details of the 1911 expansion, it did not specify the location of any additional kettles.

brick. Concrete floors show much evidence of former ports (now filled) for inter-floor liquid transfer at different stages of brewing as well as sloping for drainage purposes. Original, tall round-head windows in some cases have been bricked-in completely. On the second and third floors, however, smaller, paired round-head windows are only partially bricked in; in these, the upper, round-head transoms remain intact.

In room 104, measuring roughly 40' x 44', two large, square-section, hollow[4] concrete columns extend 25' in height to support a concrete jack-arch ceiling. Along the east edge of the ceiling of this room, a departure in form from the surrounding jack arches provides evidence of post-brewery infill of two large holes that originally accommodated vessels mounted between the first and second floors. The floor of room 302 is notable for the 15'-diameter concrete circle, a post-brewery filling-in of a hole that originally held a circular vessel. The underside of this infill is visible in the coffered concrete ceiling of room 203 below. In rooms 203 and 302, two riveted, built-up steel columns support coffered concrete ceilings.

In the late 20th century the original single Brew House basement room was subdivided to create rooms 002 and 003. The exterior walls of these rooms are wetlaid rubble below and brick above. The ceiling is jack-arched, and columns are round-section steel, similar to those in the neighboring Stock House basement room 004 (q.v.).

C. **Stock House** (1892)

This core comprises rooms 004, 105, 204, 303 and 304.

Historical function. The defining physical feature of lager breweries built in the era of mechanical refrigeration was the massive stock house used for "lagering," i.e., settling and aging of the fermented beer in large casks. In earlier periods, this process was carried out in underground caverns and—by the mid-19th century—in aboveground, heavily-insulated icehouses. The introduction of reliable, steam-powered refrigeration equipment after 1880 allowed the stock houses to be integrated physically into the footprint of the brewery. The cellar and first floors of this core (rooms 004 and 105), along with cellar space below the Brew House, were used for lagering.[5]

The wort from the brew kettle required cooling so as not to kill the yeast used in fermentation. Cooling was carried out on the top floor in rooms 303 and 304. The 1892 architect's rendering shows a series of Stock House roof vents (now removed) for dissipation of this heat. After sufficient cooling, the wort was released gravitationally through floor ports to the second floor fermentation vats (rm. 204) (*Additional Information*, Figure 6).

Current conditions. The three-story (plus basement) Stock House is the largest core of the building, occupying about 80% of the south (Harris Avenue) elevation. The five rooms of the

[4] The purpose of this hollow space is undetermined.
[5] Wagner's 1892 *Western Brewer* article notes that part of the cellar below the Malt Mill and Brew House were intended for this purpose as well.

Stock House comprise about 22,000 sq. ft. of space. The basement, first, and second floor rooms are 74'-square. On the third floor (used for cooling of wort) there are two rooms: one measuring 30' x 74', the other 41' x 74'. Floors are concrete. Columns vary: cellar (004) columns are round-section steel; first- and second-floor (105, 204) columns are riveted, built-up I beams; third-floor (303, 304) columns are square-section timber. Similar to the Brew House, the concrete floors and ceilings show much evidence of inter-floor liquid transfer. Ceilings are jack-arch except for those on the top floor, which are concrete beam. Stock House window openings were minimized for temperature control. Original narrow, round-head windows were replaced post-brewery with steel frame, rectangular industrial windows (nine-light with a six-light pivot sash).

D. **Lager Racking Room** (ca. 1900, enlarged 1911)
Comprising rooms 005, 106, 108, 206, and 306

Historical function. After aging and settling in the Stock House, the finished beer was moved to the Lager Racking Room and transferred to wooden kegs for retail distribution. As built in 1892, this process was carried out in a relatively small, single-story room. This room was demolished ca. 1900 and replaced with a two-story building that extended to Eagle Street. In 1911, when annual brewing capacity was increased to 200,000 barrels, the Lager Racking Room was raised to its current height. The brewery also sold bottled beer; the bottling operation was carried out in one of the rear frame sheds (demolished by 1951).

Current conditions. Each of the four stacked, aboveground chambers of the Lager Racking Room measures 34' x 70', a total area of almost 10,000 sq. ft. All floors are concrete. Walls are a mix of brick and concrete. Columns are typically 14"-diameter steel; on the top floor, these are 8" in diameter. Although some Racking Room windows are bricked-in, six-light steel frame windows are found in rooms 108 and 206.

E. **Lager Wash House** (1892, enlarged ca. 1904 and 1911)
Comprising rooms 006 and 109.

Historical function. This room housed power equipment for washing wooden kegs returned to the brewery from bars or restaurants for reuse. Water usage was significant and it is likely that drainage channels (no longer extant) were designed into the original concrete floor pour. When built in 1892, this room was about one-third its present size. It was extended to Eagle Street ca. 1904 and expanded northerly to its current dimensions when open space between the ca. 1900 Ice Plant and the north elevation of the Main Building was infilled in 1911.

Current conditions. This is a 60' x 69' deep, single-story room (109) attached to the north wall of the Racking Room. Cellar room 005-006 extends below both the Racking Room and the Lager Wash House. The roof is a shallow-pitched gable. Timber trusses show two major construction campaigns: although altered over time, the southeast corner of the room presents evidence in the wall surface and the trusses of the original 1892 construction, the remainder of the room representing ca. 1904 and 1911 expansion. Trusses combine steel tension rods and timber

diagonals in compression. Columns supporting the trusses are generally square-section timber resting on a concrete floor. Some more recent timber columns and a rolled steel I-beam supported by a round-section steel column were added over the years for strengthening or repair of the truss structure.

F. **Drying Room** (1911)
Comprising rooms 110, 207 and 307.

Historical function. Breweries of this size produced a high volume of spent grain from the mashing process and there was a significant market for this byproduct as animal feed. Because wet malt had to be dried before resale, the brewery erected this Drying Room[6] in 1911 in the space gained through infill between the north elevation of the Main Building and the detached Ice Plant. Physical evidence suggests that the principal work of drying—a process that likely employed aeration and heat—appears to have taken place in room 207, the deepest (25') of the three rooms. Although likely related to drying, the historical uses of rooms 110 and 307 are undetermined.

Current conditions. These rooms measure roughly 30' x 45' and include an elevator shaft that opens to the Engine/Refrigeration House. Floors are concrete. The first floor room (110) has a ceiling height of 17'; the second floor (207) is 25' in height. Two I-section, built-up columns support coffered concrete ceilings.[7] A third floor (307) appears to have been altered in the mid-20th century, its east and north walls now sheathed in corrugated steel panels. Although the arched windows along the elevator shaft are bricked-in, complete frame windows (including sash) dating to the 1911 expansion survive on the east wall of the shaft.

G. **Engine/Refrigeration House**
Comprising rooms 107, 205 and 305

Historical function. As built in 1892, this core comprised two floors. The first floor (107) housed a steam plant powering two 125 HP steam engines which, in turn, powered two 75-ton De LaVergne refrigeration machines. The condensers for this machinery were installed on a mezzanine above (four feet below the floor level of present-day room 205), where heat generated in the process was likely vented through the roof. A strong jack-arch floor system was necessary because of the weight of the condensers. This two-floor arrangement of machinery and jack-arch floor system is depicted in an 1896 De LaVergne catalog engraving (*Additional Information*, Figure 5). Also housed in this core was the plant's boiler house from 1892 to 1910. Adjacent to the two boilers on the north elevation was a roughly 70' brick chimney.[8] In 1911, a third floor

[6] As noted above, this brewery purchased prepared malt and milled it for brewing. Breweries that germinated barley on site needed to dry the partially-germinated malt before milling. The Drying House at American Brewing Co. should not be confused with this latter type.
[7] The 1921 Sanborn Map notes that this core was of fireproof construction, the only rooms so described.
[8] Dismantled in 1911. The chimney was located in what is now the southwest corner of the Drying House.

was added, the formerly interior boilers[9] were relocated to a freestanding building, the Second Boiler House (q.v.). The boilers provided pressurized steam to the Engine House by way of an overhead pipe. A 1901 description of the plant notes the use of seven additional steam engines beyond the two noted above: two Harris-Corliss engines of unspecified power, five "small vertical engines" of unspecified make, and a 40 HP Ridgeway high-speed engine powering the brewery's electrical plant. Aggregate power for operating the brewery during the period from 1892 to 1910 totaled 1000 HP.[10] Although there are no available figures, it can be assumed that the power requirement of the expanded plant (1911-1922) was significantly increased, as evidenced by the installation of four boilers in the Second Boiler House.

Current conditions. This core comprises three rooms measuring approximately 70' x 40'. There is no basement. The ground floor is slab concrete. First floor columns are built-up, riveted I-beams supporting I-section beams which, in turn, support a ceiling that is partially jack-arch and partially coffered concrete. Second floor columns are rolled steel I-beams supporting the plank 3rd floor above. The third floor (305), added in the 1911 expansion, is plank. All first-floor arched windows have been bricked-in. Second-floor windows are partially bricked-in, leaving the round-head transoms open. Similar to the second floor, third floor windows are bricked-in up to the round-head transoms; these are covered with plywood. In the post-brewery period, the first floor was subdivided to provide two additional rooms.

There is significant physical evidence to indicate that the Engine/Refrigeration House, as built in 1892, was a single deep chamber with boilers, steam engines and compressors on the slab ground floor and the condensers for this refrigeration system on a mezzanine above (see *Additional Information*, Figure 5). The main evidence for this is the two-tiered ceiling visible in the northern half of the room. The original jack-arch ceiling that supported the mezzanine is at an elevation about 4' below that of the floor of room 205. Post-brewery, a new concrete floor was poured in room 205 four feet above the former mezzanine level in order to raise it to the same grade as that of neighboring room 203. The resulting (and unusable) 4'-deep space between the jack-arch ceiling of room 107 and the concrete floor of room 205 was created after 1922 to provide unhindered passage between rooms 203 and 205 in the new use of the building. Built as part of the 1911 expansion, a handsome, narrow steel stairway with bronze finials provides communication between the ground floor of the Engine/Refrigeration House and the two rooms above. Because this stairway leads to the post-brewery, raised floor height of room 205, it appears that some alteration occurred in the building's conversion to moving and storage use.

Ice Plant (ca. 1900, Contributing)
Comprising rooms 111 and 208

Historical function. The brewery demolished the rear wood-framed shed ca. 1900 in order to build a new, two-story "artificial" ice plant. The first floor housed ice-making equipment, the second floor served as keg storage. An artesian well provided necessary water for the brewing

[9] Designed for two interior boilers in 1892, a third boiler was added ca. 1900.
[10] *Manufacturers and Businessmen* (1901), p. 223.

operation. Although this plant provided necessary ice for the brewery, by 1901 it also functioned as the Hygienic Ice Company, a subsidiary operation for sale to the retail trade.

Current conditions. This is a 79' x 84', brick 2-story building (rooms 111 and 208), originally detached, but now attached to the north elevation of the Main Building. The brick exterior is unornamented. Although segmental arch window openings are bricked-in, quarry-faced granite sills survive. First-floor columns are square-section timber resting on pyramidal concrete bases. The ground floor is concrete; the second floor is plank. Second floor square-section timber columns support a shallow-pitched gable roof. A late 20th-century subdivision of the first floor provides a roughly 30' x 60' room accessed from the Lager Wash House.[11] There are three freight doors: a modern door on the east wall, a second floor wood door that appears to be original (exhibiting the angled planking common to large industrial doors of the period), and a modern opening (now filled) at the northwest corner of the north wall.

Second Boiler House (1911, Contributing)

Historical function. As noted above in the description of the Main Building, the original boiler house was within the Engine/Refrigeration House (room 107). In 1911 Providence Brewing Company eliminated the two internal boilers and built a freestanding building that housed four boilers. Pressurized steam was directed to the main building by way of an overhead pipe.

Current conditions. This is a two-story, flat-roofed brick building measuring 50' x 45' and built on a concrete foundation. It is notable for the efforts made by the architect[12] to harmonize with the design of the Main Building, particularly its corbeling, blind round-head arches, and rough granite trim. Corbeling at the top front corners presents a checkerboard pattern of alternating recessed brick.[13] The original design provided two symmetrically-placed, garage-door front entrances flanking a tall, rectangular, center bay window. The garage-door openings were strengthened by the insertion of a steel lintel tied into the building frame by tension rods mounted with cast-iron fleurettes. The north garage entrance has been brick-filled. Interior framing is reinforced concrete. The ground floor slab is concrete; the second floor is coffered concrete beam. After its use by the brewery, a roughly 6'-square cut was made in the second floor, likely for materials handling purposes. A 125' chimney located at the northeast corner of the building was removed between 1937 and 1951. A wooden exterior staircase on the north wall leads to a post-brewery, second-floor doorway. The 1911 boilers have been removed.

[11] The 1904 Sanborn Map shows a subdivision at the southwest corner of the Ice Plant's first floor labeled "Drive" and separated from the rest of the plant by way of an iron-clad wall. Artificial ice manufacture was highly mechanized; this label refers to the power plant for group drive of this machinery. By 1921, this room was extended northerly the full length of the building and labeled "Ale Wash House." The elimination of group drive mechanisms suggests that the ice plant had been electrified by this time.
[12] A December 1910 *Board of Trade Journal* item noted plans made by Providence Brewing Co. to make extensive alterations to the plant as designed by an unspecified architect from Roxbury, MA. See "Building and Architectural Notes," *Board of Trade Journal* 22 (December 1910).
[13] Although a very similar extended corbeling is present throughout the Main Building, it only appears with this checkerboard pattern once, at the northeast corner of the Drying Room.

Automobile Garages (between 1937 and 1951, non-contributing)

Three brick, single-story, flat-roofed utilitarian buildings are aligned along the east property line north of the Second Boiler House. These were built post-brewery by Green's Moving and Storage. The 1951 Sanborn Map identifies these as automobile storage buildings. The southernmost of these is attached to the Second Boiler House by way of a concrete block connector.

8. Statement of Significance

Applicable National Register Criteria
(Mark "x" in one or more boxes for the criteria qualifying the property for National Register listing.)

- [ ] A. Property is associated with events that have made a significant contribution to the broad patterns of our history.
- [ ] B. Property is associated with the lives of persons significant in our past.
- [x] C. Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.
- [ ] D. Property has yielded, or is likely to yield, information important in prehistory or history.

Criteria Considerations
(Mark “x” in all the boxes that apply.)

- [ ] A. Owned by a religious institution or used for religious purposes
- [ ] B. Removed from its original location
- [ ] C. A birthplace or grave
- [ ] D. A cemetery
- [ ] E. A reconstructed building, object, or structure
- [ ] F. A commemorative property
- [ ] G. Less than 50 years old or achieving significance within the past 50 years

Areas of Significance
(Enter categories from instructions.)
ARCHITECTURE
INDUSTRY
ENGINEERING

Period of Significance
1892-1922

Significant Dates
1892, 1911, 1922

Significant Person
(Complete only if Criterion B is marked above.)
N/A

Cultural Affiliation
N/A

Architect/Builder
Adam C. Wagner, architect/engineer (original plant)
Nathan B. Horton, contractor (original plant)

Statement of Significance Summary Paragraph (Provide a summary paragraph that includes level of significance, applicable criteria, justification for the period of significance, and any applicable criteria considerations.)

The American Brewing Co. Plant is significant under **Criterion C** on the local level in the areas of architecture, industry and engineering, as a fine example of an urban, industrial-scale, "gravitation brewery" built in 1892 and expanded ca. 1900 and 1911. The plant, as it exists today, reflects this 1911 expansion. This brewery was designed by Philadelphia-based architect-

brewmaster-engineer Adam C. Wagner (1860-1935) to incorporate a new scientific understanding of all aspects of brewing, the implementation of precisely-controlled brewing techniques, and the use of steam-powered refrigeration equipment as developed and marketed in the last quarter of the 19th century. Wagner designed American Brewing Co. for the brewing of lager beer, which required longer and more controlled cooling and aging than the ales and porters that had dominated American beer tastes since the colonial era. Thus, the plant comprises a massive (3-story plus basement), mechanically-cooled "Stock House," a process formerly carried out by an earlier generation of brewers in underground caverns or above-ground ice houses. To ensure controlled cooling, the plant was designed to accommodate the installation of newly-patented De LaVergne mechanical refrigeration equipment.

The American Brewing Co. Plant retains integrity of location, design, setting, workmanship, feeling and association as an expression of industrial-scale scientific brewing as it emerged in the late 19th century and as an example of the work of Adam C. Wagner, an acknowledged master of the science of brewing, brewery architecture, and engineering. This a rare survival of a Wagner brewery and the only industrial brewery of the period surviving in the state. The Period of Significance includes the years from construction in 1892 to the cessation of brewing and the company's failure during national prohibition in 1922.

Narrative Statement of Significance (Provide at least **one** paragraph for each area of significance.)

Archaeological evidence dates human knowledge of the process of brewing to the fifth millennium BCE. From its inception to the late 19th century, brewing remained an artisanal craft, subject to the vagaries of environment, quality of ingredients, and skill—or instincts—of the brewer. The development of a scientific understanding of fermentation and the global dissemination of this knowledge after 1875 caused a general expansion of the industry. Much of this new knowledge centered on the chemical nature of brewing and, specifically, fermentation. Critical to this was the control of temperature and environment at the various stages of brewing and the introduction of measuring devices and gauges to ensure this control.

Under the influence of a major wave of German immigration to the United States beginning in the 1830s, lager beer grew in popularity in the United States, eventually dominating the brewing market by later in the century. Unlike the ales and porters that preceded it, the brewing of lager required lengthy and precisely-controlled cooling and aging. The use of the German word *lager* for this type of beer derives from its original sense, to rest or wait. These factors limited the largescale manufacture of lager beer until the introduction of effective, reliable, steam-powered mechanical refrigeration equipment in the 1870s set the stage for a massive expansion of industrial-scale brewing in the last two decades of the 19th century and, consequently, major changes in the architecture of breweries. In fact, brewers of the period played a major role in investing in improvements to and marketing of refrigeration technology. In addition, lager did not transport well over great distances and, with its consumers settled in dense, urban districts, brewery architects of the period developed the "gravitation brewery," i.e., a vertical brewery

exploiting gravitational flow and the use of pumps and conveyors to transfer the products of progressive stages of brewing through roof and floor ports to eventual cooling and aging in mechanically-cooled stock houses. (see *Additional Information*, Figure 2.)

The age-old process of brewing beer involves the partial germination or "malting" of barley to produce the sugars required for fermentation. This malted barley is subjected to a grinding process in the Malt Mill. In the Brew House, the malted barley is cooked in water to create a porridge-like mash. This process converts starches to the sugars necessary for the chemical processes of fermentation. The mashing process yields liquid "wort," which is drained off and transferred to a brew kettle where hops (adding bitterness) are added. The wort is then transferred to cooling vats and, once lowered to the correct temperature, transported to fermentation vats. Fermentation transforms the sugars of the wort to alcohol and produces beer's characteristic carbonation. The beer is then "racked" in large kegs to allow for the settling of any sediment. It is then "lagered," or stored for aging, and transferred to kegs or bottles for retail consumption.

Each of the interior chambers of the American Brewing Co. plant can be identified by its sequence in the process of beer manufacture as described above (*Additional Information*, Figure 1). These processes—modern manifestations of ancient brewing practice—took place in a malt mill, a brew house, a wort cooling chamber, a fermentation chamber, a stock house for aging and settling, a lager racking house for transfer to keg or bottle, and a keg and bottle wash house. Unique to the modern era, this plant was powered by several steam engines and cooled by massive mechanical refrigeration equipment. In 1910 the brewing company built an attached ice plant for its own use and for the manufacture and sale of "hygienic ice."

The main building of the American Brewing Co. plant is composed of seven cores comprising twenty-seven different "rooms" devoted to the above-described phases of the brewing process. As built in 1892, the original plant housed a boiler room within the main building. Around 1900 the company built a freestanding Ice Plant north of the main building. In a substantial enlargement and reconfiguring of the plant in 1911, formerly interior boilers were moved to a separate building along the east property line; an overhead pipe fed pressurized steam to an enlarged Engine House and refrigeration plant. Although no brewing machinery or refrigeration equipment survives, the distinct chambers of the main building, with much surviving evidence of the gravitational, inter-floor liquid transfer of the sequential stages of brewing, reflect the state of the brewing art in the period from 1892 to 1922.

"Fermented liquors" and Prohibition in Rhode Island

The appreciation of malt liquors and its brewing in New England dates to the earliest English settlements. The Puritans arriving on our shores in the 17th century not only brought ale with them, but made provisions early on for the continuation of the ancient craft of brewing in the New England colonies.

Moral and religious convictions with regard to alcohol were often trumped by a realistic assessment of the comparative benefits of brewed vs. "ardent," or distilled, spirits. Writing in 1897 on the early history of New England brewing, historian Gallus Thomann noted that

> …early local histories and laws afford abundant proof that the best minds earnestly endeavoured to stem the growing predilection for ardent spirits by bestowing fostering care upon brewing and malting.[14]

Among these "best minds" was Dr. Benjamin Rush, an important medical and political figure in the Revolutionary and early republic years. Although a temperance advocate, Rush argued in the 1790s that the brewing process often yielded a more hygienic beverage than local water supplies could deliver—and it provided necessary nutrition absent in distilled spirits.

An uneasy peace prevailed in the young republic on the matter of private and public consumption of alcohol until the temperance movement gained headway in the early 19th century, inspired by the fear that new and unassimilable waves of urban immigration—especially European Catholics suffering no proscription against alcohol consumption—were threatening the stability of the republic's Anglo-Protestant foundations. Concurrent with this new immigration, initially among Germans, was a developing taste for lager beer, a lighter, more effervescent brew as compared to the heavier ales and porters associated with America's Anglo settlement. Although there is some disagreement as to the precise date, the first lager brewery likely was established in Pennsylvania by a German-American in the early- to mid-1840s.

Rising religious agitation for government-enforced prohibition eventually bore fruit in Rhode Island's first statewide law, *An Act for the Suppression of Drinking Houses and Tippling Shops*, enacted in 1852. This prohibitory law held for eleven years until its repeal in 1863, not because of a change in moral climate, but because of a pressing need for tax revenue to finance the state's participation in the Civil War. [15] Another successful prohibitory law was enacted in 1874, repealed in 1875, and re-enacted in 1886. The General Assembly repealed this final state-level prohibition law three years later in 1889, when a new law allowed for local determination of whether a municipality would be "wet" or "dry." After four decades of financial insecurity, Rhode Island brewers grew confident that large-scale investments in modern plants would succeed.[16]

The Origins of the American Brewing Company

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[14] Gallus Thomann, "The Brewing Industry in New England" in *The New England States*, Vol. IV (1897).
[15] In 1863, during the first year of resumption of the alcohol trade, Rhode Island breweries produced some 7,000 barrels of malt liquor. A dozen years later that figure had grown to 54,000 barrels and, by 1896, four years into the operation of American Brewing Company, the state's breweries produced 195,000 barrels. U.S. Brewers' Association figures cited in Thomann.
[16] The Narragansett Brewing Company, another industrial-scale Rhode Island lager brewery, received its corporate charter in 1891 and was established in nearby Cranston.

The legal origins of the American Brewing Company are found, curiously, in a May 1891 corporate charter granted by the Rhode Island General Assembly for the Hathaway Steam Trap Company.[17] A decade earlier, North Kingstown, Rhode Island inventor William A. Hathaway had secured a patent for a significant improvement in steam traps, a type of valve that allowed for the release of unwanted condensate in steam lines without significant loss of steam pressure.[18] Shortly after, Hathaway formed a company in East Greenwich to manufacture and sell these improved steam traps. At the time of the company's incorporation, however, William Hathaway was no longer involved with the company as a principal. The holders of the corporate charter were Thomas Tilley, Henry C. Tilley and John Galvin. During the July General Assembly session—just two months after the original charter was granted—a petition for an amendment was granted for the original name of the Hathaway Steam Trap Company to be changed to the American Brewing Company. Along with the name change, the capital stock was doubled to $200,000 and the purpose of the charter was for the brewing of lager beer under the management of a different group of principals. Among the new principals were local ale brewer James Hanley and bottlers John E. Good, Patrick Moroney and Thomas Grimes.

The key figure among them was James Hanley. Although no link between Hanley and the principals of the original steam trap company has been established, it is possible that the intent to capitalize and construct a large-scale, industrial brewery underlay the securing of an original and ostensibly unrelated charter. The instability of the temperance era and the recent repeal (1889) of the last state-level prohibitory law might have argued for a lower corporate profile. Local efforts notwithstanding, the temperance movement would soon direct its attention to the national arena.

James Hanley (1841-1912)

James Hanley, born in Roscommon, Ireland in 1841, arrived in Providence in 1845, the first year of the Irish Famine. By the Civil War-era, Hanley and his brother, Thomas, still in their 20s, were involved in wholesale liquor distribution. In the mid-1870s Hanley entered a partnership with liquor dealer and saloon keeper John P. Cooney to form Cooney and Hanley Brewers. In 1876 they purchased a small Pawtucket ale brewery, Merchants Brewing Company, changing its name to Silver Spring Brewery in 1879. When Cooney died in the same year, Hanley became sole owner of the enterprise, renaming it James Hanley and Company. By the 1880s he was involved in a number of Providence-area ale and beer enterprises. In 1880 Hanley purchased a long-established ale and porter brewery at the corner of Fountain and Jackson Streets in Providence.[19] He transferred the name Silver Spring Brewery to the works at the Providence location and in 1886 incorporated it under the name Rhode Island Brewery.

Under Hanley's ownership, the Rhode Island Brewery was successful. In 1890 he commissioned Philadelphia-based architect and brewery engineer Adam C. Wagner (*Additional Information*,

[17] *Acts and Resolves of the Rhode Island General Assembly*, July Session 1891.
[18] *Steam Trap*, No. 263,175. Patented Aug. 22, 1882.
[19] This site was redeveloped in the 1960s and 70s as part of the Weybosset Hill urban renewal project. Any surviving buildings of the Rhode Island Brewing Company were demolished at that time.

Figure 3) to expand and modernize the aging plant with a complement of brick buildings to accommodate a 300-barrel[20] kettle, an improved malt mill, and modern mechanical refrigeration equipment.[21] Apparently Hanley was satisfied with Wagner's work; a year later, when he incorporated the American Brewing Co. to enter the burgeoning lager market, he again commissioned Wagner, this time to design and oversee construction of a modern, industrial-scale lager brewery and stock or "lagering" house. This plant would incorporate the latest techniques in malting, scientific brewing and steam-powered refrigeration equipment. A 1910 *Board of Trade Journal* article described the plant as "the most conspicuous architectural feature of that section of Providence."[22]

A. C. Wagner, brewery engineer and architect (1860-1935)

Adam C. Wagner was born in Saxony, Germany in 1860. In his mid-teens the family immigrated to Philadelphia. Although the course of his education is unclear, he became involved in construction as a young man and was listed in city directories as an engineer or architect by 1883, developing a specialty in the areas of architecture, engineering and brewing. By 1890 (at age 30) he had received major commissions for the design and construction oversight of complete breweries. Among these early commissions was the complete design of the Albert Carry Brewery in Washington, D.C. (1886), and the new plant of the Kalmbach and Geisel Brewery in Springfield, Massachusetts (1890). During his years in Philadelphia, Wagner was involved in major improvements to or complete design of about 17 breweries. Speaking broadly on the necessary qualities of a modern brewery in 1911, Wagner said:

> In order to get a good, healthy and palatable ale or lager, you need good malt, good hops, a clean and sanitary brewery, the storage rooms kept at an even temperature, and sufficient age of the product.[23]

Wagner's appreciation of the necessity of a "clean and sanitary brewery" was shared by an emergent, international crop of engineers and scientists specializing not only in the chemistry and the role of temperature control of brewing, but in the danger posed by environmental contaminants. A major contribution to this theoretical foundation was the publication in 1876 of Louis Pasteur's *Études sur la Bière (Studies on Fermentation)*, generally recognized as the first study to lay bare the chemical nature as well as the time, temperature, and environmental constraints of the processes taking place in brewing, particularly fermentation. Modern industrial brewing, no longer reliant on empirical or traditional craft methods, was made possible by Pasteur's work.[24]

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[20] The standard barrel in American brewing is 31 gallons.
[21] "New Brewery Enterprises." *Western Brewer* 15 (15 October 1890): 2243.
[22] *Board of Trade Journal* 22 (October 1910): 441.
[23] "New England Brewery's Enlarged Plant." *Hartford Courant* (30 October 1911): 12.
[24] Pasteur turned his interest to brewing science following France's defeat in the Franco-Prussian War (1870-1), in which Germany gained control of the much of the territory of Alsace and part of Lorraine—areas noted for the quality of their beers: "I was inspired to undertake this research by our misfortunes [in the war]. I began the work shortly after the end of hostilities and have since pursued it with the resolve to

While designing and overseeing the construction of the American Brewing Co. plant in 1892, Wagner received a U.S. patent for an improved "mashing apparatus" or *mash tun* (*Additional Information*, Figure 4). As noted above, in the mashing phase of the brewing process, milled grain (as prepared in the malt mill) is soaked in water and cooked to convert the grain's starches to the sugars required for fermentation. The wort yielded from this process is drained and transferred to the brewing kettle. Wagner claimed to "provide a simple and effective mashing apparatus by which the wort from malt and other ingredients is extracted in a rapid, thorough, and economical manner."[25] Among the improvements stated in the patent specifications was the use of metal agitation arms within the tun to assure even and efficient agitation in the cooking of the mash. It is probable that Wagner installed this improved mash tun in the brew house of the American Brewing Co. Wagner left Philadelphia ca. 1900, removing to Hartford where he became involved with the New England Brewery. During national prohibition, he invested in real estate. He died in Hartford in 1935.

Mechanical refrigeration, "lagering," and the transformation of brewery architecture

During the period from the introduction of lager beer to the United States in the 1840s to the 1880s, large-scale manufacture proved difficult due to lager's requirements of long periods of controlled cooling, settling and aging. Brewers had addressed this in two ways: producing beer seasonally (in the winter months) and aging and settling in underground caverns, or erecting large, insulated icehouses cooled by "natural" ice. As noted by John Paul Arnold in his 1933 historical study of American brewing:

> It was mechanical refrigeration that made brewing a year around business and allowed the various operations to be conducted in accordance with the requirements established by scientific research as to cooling and exact maintenance of low temperatures. It was mechanical refrigeration that permitted all the parts of the brewing process to be carried on above ground and this made possible the erection of the magnificent brewery structures that were wont to grace our cities.[26]

The general adoption of mechanical refrigeration as a requirement for industrial-scale lager brewing was well established by the time Hanley commissioned A.C. Wagner. In April 1892 while construction of American Brewing Co. was in process, Wagner's office submitted a press release and architect's rendering to *Western Brewer*, a major trade publication, describing the progress of the building and its characteristics (see *Additional Information* section for full text and rendering). The article noted:

> The entire exterior brewery is built of pressed, hard burnt brick, with granite trimming. The interior is constructed of wrought iron, which together with the use of the most modern appliances used for the brewing process will place it among the foremost of the complete and

see durable progress in an industry in which Germany is superior to us." *Études sur la Bière* (1876). Translation by the author.

[25] U.S. Patent 478,667. Filed April 12, 1892, granted July 12, 1892.

[26] Arnold, *History of the Brewing Industry and Brewing Science in America*, p. 92.

> well-equipped breweries in the United States.[27]

Among the features described in the design of the plant was the installation of two 75-ton-capacity De LaVergne refrigeration machines[28] and all of the associated ductwork and piping necessary to distribute cooled air throughout the plant. These two machines, powered by 125 HP Harris-Corliss steam engines, provided the cooled air necessary for the plant's wide range of operations (*Additional Information*, Figure 5).

John De LaVergne (1840-1896) and the De LaVergne Refrigerating Company

As a young man, John De LaVergne was involved in the produce business in upstate New York, and later in New York City. In that capacity he came to know several area brewers and took interest in the challenges presented by the use of natural ice. In 1876 he became a partner in the Hermann Brewery in New York where he had the opportunity to see the high costs of natural ice and the practical and hygienic[29] liabilities associated with its use. An 1890 De LaVergne publication provided some historical background on ice-cooling at the Hermann Brewery:

> After his first years' experience [ca. 1877] in refrigerating the brewery with ice—and considering the outlay required for its purchase, the many incidental expenses and delays attending its handling, the space occupied for its storage, the uncertainty of the ice crop and its increased price, the dampness, waste, slop, and inconvenience experienced in consequence of its use, [De LaVergne] was forced to the conclusion that if there were any mechanical means for accomplishing the same or better results, which were practical and reliable, he would endeavor to secure the same for his brewery.[30]

While affiliated with the Hermann Brewery, he immersed himself in acquiring a scientific understanding of mechanical refrigeration and began perfecting a commercially-viable refrigeration machine. Although the scientific principles of mechanical refrigeration had been known for some time, a practical, reliable and affordable means of compressing and expanding ammonia gas for mechanical cooling had been elusive due for the most part to ammonia loss at critical points in the process. Addressing this loss and finding a solution, De LaVergne installed and operated successfully a refrigeration machine at the Hermann Brewery in 1879. He formed the De LaVergne Refrigerating Company (New York City) in 1881, one of the first to address

[27] *Western Brewer* VXII (15 April 1892): 810.
[28] Wagner's 1892 press release to the Western Brewer described two 65-ton machines. The brief description of the Providence Brewing Company plant in Hall, *Biographical History of the Manufacturers and Businessmen of Rhode Island* (1901) states that the two machines were of 75-ton cooling capacity. It appears that by the time of installation, larger capacity machines were installed—perhaps with an eye toward future expansion.
[29] The brewing process is particularly sensitive to contamination. Natural ice was harvested from local ponds, which were growing more polluted in the period due to massive population growth.
[30] "The Machine in the Hermann Brewery," from *Mechanical Refrigeration* (1890), p. 63.

successfully mechanical difficulties and ammonia loss,[31] develop improved machinery, and bring it to market.[32]

The Construction of the American Brewing Company Plant

In October 1891 James Hanley received a city permit for construction of a "four-story building" with an estimated cost of $140,000; he chose the well-established Providence firm of Nathan B. Horton as contractor. N.B. Horton built many of Providence's most prominent buildings, among them Union Station, the Dorrance Building, the Wilcox Building, and the State Normal School. Three months later, under the name American Brewing Company, Hanley purchased a 1.4-acre lot west of downtown Providence.[33] A.C. Wagner completed plans for the brewery early in 1892, spending time in Providence to oversee construction of the plant. In the same year American Brewing Co. amended its corporate charter to increase capitalization from its original $200,000 to $300,000. By 1893 the plant was in full operation with a staff of 55 operatives and an annual brewing capacity of 70,000 barrels (2,170,000 gallons).

Wagner's original design comprised six distinct functions[34] in as many physical areas of the plant. The focal point of the building was the combined Malt Mill (rooms 202, 299 and 301) and ground floor Office (rooms 101 and 103). Adjoining this was a three-story Brew House (rooms 104, 203 and 302) for preparation of the mash and brewing in a 300-barrel kettle. Large round-head, east elevation windows provided passers-by a view of the polished copper kettle and mash tun. Immediately north of the Brew House was a two-story Engine/Refrigeration House (rooms 107 and 205) housing two boilers, an engine house, two De LaVergne refrigeration machines[35] and a direct current generating plant powered by a 40 HP Ridgeway high-speed steam engine. Water was furnished to the plant by means of an artesian well along the east boundary of the brewery property.

Occupying the southwest corner of the plant was the three-story (plus basement) Stock House (rooms 004, 105, 204, 303 and 304). In terms of the massing of the plant—if not design treatment—the Stock House is the building's dominant architectural feature. Susan Appel, in her 1990 study of mechanical refrigeration and the consequent transformation of late 19th-century brewery architecture, noted this impact:

> Undoubtedly, the major architectural impact of the arrival of large-scale mechanical refrigeration was the introduction, beginning in the 1880s, of aboveground, artificially-cooled cellars or stock houses. While a stock house continued the established ice house pattern of distinct cellars stacked on top of one another, its form became more flexible. Freed of storing massive amounts of ice at its top, the construction could be less massive itself. Construction of a stock house might feature

[31] See U.S patents granted to John De LaVergne. No. 230,694: *Beer coolers* (August 3, 1880) and No. 275,367: *Apparatus for condensing gasses or vapors* (April 10, 1883).
[32] The first De LaVergne machine in Providence was installed at N. Molter's Sons Brewery in 1887.
[33] Providence Land Evidence Book 366: 489 (January 1, 1892).
[34] The Drying Room core was not added until the 1911 expansion.
[35] A third floor (305) was added in 1911. This room has a wooden plank floor.

> heavy bearing walls and heavy timber framing, especially since it held many large tubs of heavy liquid [including fermentation vats], but as time passed and new ideas developed, it was as likely to be built with steel framing or of reinforced concrete and could be almost as high as convenience or need required. Whatever its method of construction, the stock house became a significant architectural element in the brewery complex and one which did not appear until the adoption of artificial refrigeration.[36]

After the wort was drained from the brew kettle it was pumped to the top floor of the Stock House (rooms 303, 304) for cooling in large iron vats. According to the *Western Brewer* description (see *Additional Information*), one of these rooms—likely the northernmost—was used for hop storage. Because the temperature of the wort at this phase would kill yeast, it was necessary to dissipate this heat through roof vents before fermentation. Three vents are visible in the Stock House roof in the 1892 architect's rendering (*Additional Information*, Figure 11). Once cooled, the wort was passed through floor ducts to the vats of the Fermentation Room (204) immediately below (*Additional Information*, Figure 6). When fermentation was complete (a period of about two weeks), the newly-brewed beer was transferred to 125-barrel casks in the basement (003 and 004) for "resting" or settling. After a period of settling, the beer was aged in first-floor storage vats (105).

Adjacent to the Stock House were three[37] stacked "Racking" or keg-filling rooms comprising about 2,500 sq. ft. each (106, 108, 206 and 306). In these rooms, aged beer was transferred to wooden kegs along a type of internal rail system and prepared for distribution to retailers. Attached to the Racking Rooms was a deep, single-story, 60' x 72' Lager Wash House (109) where kegs returned from retailers were washed to eliminate any contaminants and dried or repaired for reuse.

Cooperage was a vital part of breweries of this period before the introduction of steel kegs. Both the 1899 and 1921 Sanborn Map showed detached Cooper Shops north of the main building. Now demolished, these shops produced and repaired kegs and also lined their interiors with brewers' pitch to seal the kegs and prevent the beer from acquiring an undesirable taste imparted by the wood. Coopers also performed repairs and maintenance on larger wooden casks and vats used throughout the plant. Another important wood-frame outbuilding along Eagle Street was the Bottling Shed (demolished between 1937 and 1951).

Providence Brewing Company

At its January 1895 session, the Rhode Island General Assembly amended the earlier American Brewing Co. charter (1891) to change the name to Providence Brewing Co. The reason for this change is unclear, as there was no change in capitalization or key principals. However, several other breweries around the country were operating under the name American Brewing Co.,

[36] Susan Appel, "Artificial Refrigeration and the Architecture of 19th-Century American Breweries." *IA*, 16 (1990).
[37] Although there is a large, shared cellar room below the Racking Room and Lager Wash House (005, 006), the historical use of this cellar space is as yet undetermined.

including one as close as Boston. There is no evidence of any legal affiliation among the breweries operating under that name; the local name change may have been for reasons of legal expedience. The company operated under this name until its failure in 1922. Tax valuations from 1893, the first year of operation, to the end of operations in 1922 indicate a steady rise—with some yearly fluctuation—in property value and machinery. From a workforce of 55 operatives noted in 1901, employment at the brewery rose steadily to about 75 operatives before the 1911 expansion to a peak employment of 108 operatives in 1917.[38]

Upon completion of construction in 1892, the brewery erected several frame sheds for auxiliary uses in the yard to the north of the Main Building. While most of these were aligned generally along Eagle Street and the north and west lot lines, the largest was a roughly 75'-square shed in the center of the yard. By 1899 this shed housed three functions: a wagon shop, a keg shed, and an enclosure adjacent to the keg shed for pitch preparation. The brewery demolished this frame shed ca. 1900 in order to build a new, two-story "artificial" ice plant of similar dimensions. The original artesian well providing necessary water for the brewing operation was located east of the plant along the east property line. In 1898 the brewery sunk a new well within the footprint of the Main Building in anticipation of construction of the ice plant. The second floor of this building served as keg storage. Although this plant provided necessary ice for the brewery, by 1901 it also functioned as a subsidiary operation, the Hygienic Ice Company.[39] The former functions housed in the earlier shed were removed to other locations on the property, eventually occupying nearly all space to the rear and sides of the Main Building (*Additional Information*, Figure 9). In 1911 Providence Brewing Co. created new interior space by infilling the 33'-wide corridor between the existing Ice Plant and the Main Building.

In 1910 the Providence Brewing Co. increased capitalization to $500,000 and, late in the year, undertook design of a major enlargement of the plant. Although contemporary accounts do not make note of additional kettles, capacity of the Brew House was almost tripled from the original 70,000 barrel/year capacity to 200,000 barrels. The original interior boiler house (two boilers) powering the refrigeration equipment was removed to a new, freestanding building to the east of the main building (housing four boilers). A new floor was added (room 305) above the mezzanine-level De LaVergne condensers in the Engine/Refrigeration House.

As part of this expansion, the Lager Wash House was extended to the south wall of the 1900 Ice Plant and west to Eagle St., effectively tripling its size to about 4,000 sq. ft. The original single-story Racking House (adjoining the Stock House) was demolished and rebuilt—expanded to

[38] Sources: Hall, *Biographical History* (1901) and *Reports of the Factory Inspector* (1908-1922). The first state factory survey including statistics on Providence Brewing Co. appeared in 1905.
[39] D.M. Patt installed the artesian well in 1898 (*Providence Journal of Commerce* 6, p. 188). The operation of this ice-manufacturing subsidiary was noted in *Manufacturers and Businessmen* (1901), p. 223. The term "artificial ice" was used at the time to distinguish this product from the "natural" ice harvested from ponds. By the late 19th century, urbanization and expanding industry were fouling many of the ponds used historically for ice harvest. The excessive warmth of the winters of 1889-90 and 1890-91 in the eastern part of the country also had a devastating effect on the natural ice trade.

Eagle Street and raised to three stories plus basement. Infill created between the Engine/Refrigeration House and the Ice Plant allowed for the creation of a Drying Room (110 and 207, including an elevator shaft) for drying of spent malt for resale as animal feed. Tax valuation for the property rose from $157,400 in 1909 to $197,820 in 1911. Valuations continued to rise during that decade to a high of $247,820, which was sustained for the period from 1914 to 1919.

James Hanley died in August 1912. At the time he held the title of president of the Providence Brewing Company, a thriving enterprise. He would not live to see his lager brewery undone by another round of alcohol prohibition.

National Prohibition

As noted above, the forces advocating for state-level prohibition were not defeated when the General Assembly repealed the last state-level prohibitory law in 1889. The movement, quiescent for a time, gathered force with the entry of the United States into World War I. Although an effort was made to enact national prohibition as a means of marshalling resources, ostensibly grain, for the war effort, the end of the war in November 1917 stalled this effort. A month after the war ended, a resolution for an 18th Amendment to the Constitution was introduced and passed by both houses of Congress. Enactment, requiring approval of two-thirds of the states, was accomplished in January 1919, prohibition going into effect in 1920. Rhode Island (in 1919) and Connecticut (in 1918) were the only two states to vote against ratification of the amendment.

Details of the enforcement of the 18th Amendment were contained in enabling legislation known as the Volstead Act. In March 1919 opponents in the Rhode Island General Assembly attempted unsuccessfully to pass a resolution instructing the state's congressional delegation to disregard the Volstead Act, a measure that died in committee. Undaunted, Rhode Island "wets" soon succeeded in passing a resolution directing Attorney General Herbert A. Rice to challenge the legal validity of the act in the U.S. Supreme Court. On March 12, 1919 the suit *State of Rhode Island vs. A. Mitchell Palmer, Attorney General and Daniel C. Roper, Commissioner of Internal Revenue* was brought to the United States Supreme Court. The Rhode Island Attorney General argued that the 18th Amendment and the Volstead Act unconstitutionally projected federal law enforcement into the borders of a sovereign state:

> A State is bound in respect of sovereign powers only by the explicit act of her whole people. To be valid, an amendment must have such relation to the general grant of powers and to the scope and purposes of the Constitution as will carry an implication of assent on the part of the people of the United States, springing from their adoption of the Constitution.
>
> In the case of this so-called amendment, the representatives of the people of the United States have attempted, not to amend the Constitution of the United States, but to amend the Constitution of every State in the Union.

In the October 1919 term the Supreme Court decided against the State of Rhode Island, upholding the role of the states in amending the United States Constitution and the right of the federal government to enforce national prohibition within Rhode Island's borders.[40]

Congress passed the Volstead Act on October 28, 1919. On the following day, three of Rhode Island's major breweries (James Hanley Brewing Co., Providence Brewing Co., and Narragansett Brewing Co.) brought suit in U. S. District Court of Rhode Island arguing that the Volstead Act violated the 5th Amendment, that such enforcement constituted a negation of due process and an illegal taking of private property. The suit argued that if the three breweries were to

> …hereafter comply with the terms and conditions of the said "National Prohibition Act," its valuable real estate, personal property, business and good will would be destroyed, future profits therefrom would be rendered impossible, the value of the property as a going concern would be dissipated, its staff would be disorganized, and the value of its plant and physical assets would be at once depreciated to its junk and salvage value… [41]

An affidavit furnished with the suit provided statistics to substantiate the magnitude of the "taking." The three breweries combined provided employment to 500 operatives earning over $1 million in annual wages. Capitalization for the three plants was $2.7 million; the value of good will was estimated also to be $2.7 million. Goods on hand were valued at $1 million. In summation, it was argued that enforcement of the Volstead Act would constitute a taking of some $5 million.[42] Again, state efforts to stymie national prohibition failed.

Despite these legal manoeuvers combined with efforts to obtain licenses to manufacture beer with a lower alcohol content, the fortunes of Rhode Island's breweries—large and small—declined precipitously in the early years of prohibition. The *Beverage Journal*, a trade journal for the bottling and brewing trades, noted in a July 1921 state-by-state survey of market conditions:

> Hand Brewing Co., Pawtucket, manufactures a cereal beverage. At Providence, Hanley and Providence [Brewing Co.] make cereal beverages; the Eagle Sugolo Co. (formerly Eagle Brewery) manufactures syrup; Narragansett Brewing Co. manufactures malt extract, ginger ale and cereal beverage; and Turks Head Brewing Co. manufactures both cereal and carbonated beverages.[43]

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[40] Supreme Court of the United States, October Term, 1919. No. 29 Original. *State of Rhode Island, Complainant vs. A. Mitchell Palmer, Attorney General and Daniel C. Roper, Commissioner of Internal Revenue, Defendants.*
[41] "Three Big Breweries in State Open Fight to Test Validity of 'Dry Act.'" *Providence Journal* (30 October 1919): 1.
[42] Ibid.
[43] *Beverage Journal* 56, (July 1921): 43.

Providence Brewing Company's manufacture of non-alcoholic *Puro* did little to reverse its decline. Despite legal efforts made as late as November 1921[44] to secure a permit to manufacture beer for medical purposes, the brewery ceased operations in 1922. Near the end of prohibition, Rhode Island historian Charles Carroll noted the inevitable fate of many of the state's great industrial breweries: "The brewing industry has declined in the ten years of prohibition so much that plants once held intact for resumption have been dismantled or converted for other purposes."[45] Such was the case with Providence Brewing Co. Gustave Mensing, who had been secretary/treasurer of the company since 1910, oversaw the dismantling of the plant in the mid-1920s and its conversion to a new use as the Providence Storage Company.

Recent History

In 1936 Herbert and Raymond Green, operating as Green Brothers Moving and Storage, purchased the former brewery (*Additional Information*, Figure 10). The original ornate dome, rooftop vents and water tank enclosures may have been lost in the devastating hurricane of September 1938. Because brewing facilities of the period typically installed mash tuns and brewing kettles between adjoining floors, it was necessary to fill the large diameter holes left behind in order to maximize usable space and facilitate materials handling. The 15'-diameter concrete circle visible in the southwest corner of the 3rd floor of the Brew House (302) is an example of this repair. Green Brothers operated in this location until 1976. From 1988 to 2005, the plant was used as a records storage and management facility. The plant is now under consideration for adaptive reuse.

[44] See: "Narragansett and Providence Breweries receive permit to manufacture beer," *Providence Journal* (21 November 1921): 15. The permit was revoked four days later: "Order Revoked," *Providence Journal* (26 November 1921): 4.
[45] Charles Carroll, *Rhode Island: Three Centuries of Democracy* (1932), p. 929.

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July Session, 1891. *American Brewing Company* (p. 118).
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January Session, 1895. *Providence Brewing Company* (p. 63).

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Maps and Engineering Drawings (listed chronologically)

1895 *New Topographical Atlas*, Everts and Richards.

1896 Untitled drawing of Eagle Street realignment and brewery footprint as part of sewer survey. City Engineer's Office, Drawer 169, Sheet 3.

1899 Sanborn Fire Insurance map.

1903 *Providence Brewing Company*. City of Providence sewer survey City Engineer's Office, Drawer 32, Sheet 20.

1904 Sanborn Fire Insurance Map (pasted on additions to 1899 base drawing).

1908 City of Providence plat map.

1911 *Providence Brewing Company*. City of Providence sewer survey City Engineer's Office, Drawer 175, Sheet A-11.

1918 City of Providence plat map.

1921 Sanborn Fire Insurance map.

1926 City of Providence plat map.

1951 Sanborn Fire Insurance map.

Previous documentation on file (NPS):

____ preliminary determination of individual listing (36 CFR 67) has been requested
____ previously listed in the National Register
____previously determined eligible by the National Register
____designated a National Historic Landmark
____ recorded by Historic American Buildings Survey #_____

____recorded by Historic American Engineering Record # _____
____ recorded by Historic American Landscape Survey # _____

Primary location of additional data:

____ State Historic Preservation Office
____ Other State agency
____ Federal agency
____ Local government
____ University
____ Other
Name of repository: _____

Historic Resources Survey Number (if assigned): _____

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10. Geographical Data

Acreage of Property 1.4 acres_____

Use either the UTM system or latitude/longitude coordinates

Latitude/Longitude Coordinates (decimal degrees)
Datum if other than WGS84:_____
(enter coordinates to 6 decimal places)

1. Latitude: Longitude:

2. Latitude: Longitude:

3. Latitude: Longitude:

4. Latitude: Longitude:

Or

UTM References
Datum (indicated on USGS map):

[X] NAD 1927 or [ ] NAD 1983

1. Zone: 19	Easting: 297809.44	Northing: 4633225.04
2. Zone:	Easting:	Northing:
3. Zone:	Easting:	Northing:
4. Zone:	Easting :	Northing:

Verbal Boundary Description (Describe the boundaries of the property.)

The boundaries of the American Brewing Company Plant are contiguous with those of Providence, RI, Assessor's Map 27, Lot 8.

Boundary Justification (Explain why the boundaries were selected.)

These boundaries represent the same parcel of land purchased for the brewery in 1891 and unchanged to this date.

---

11. Form Prepared By

name/title: Edward Connors
organization: Edward Connors and Associates
street & number: 39 Dyer Avenue
city or town: Riverside state: RI zip code: 02915
e-mail: nconnors@cox.net
telephone: (401) 595-0699
date: November 2015

Submit the following items with the completed form:

- **Maps:** A **USGS map** or equivalent (7.5 or 15 minute series) indicating the property's location.

- **Sketch map** for historic districts and properties having large acreage or numerous resources. Key all photographs to this map.

- **Additional items:** (Check with the SHPO, TPO, or FPO for any additional items.)

Photographs

Submit clear and descriptive photographs. The size of each image must be 1600x1200 pixels (minimum), 3000x2000 preferred, at 300 ppi (pixels per inch) or larger. Key all photographs to the sketch map. Each photograph must be numbered and that number must correspond to the photograph number on the photo log. For simplicity, the name of the photographer, photo date, etc. may be listed once on the photograph log and doesn't need to be labeled on every photograph.

Photograph Log

Name of Property:	American Brewing Company Plant
City or Vicinity:	Providence
County:	Providence County
State:	Rhode Island
Name of Photographer:	varies, see below
Date of Photographs:	varies, see below
Location of Original Digital Files:	RISHPO, 150 Benefit St., Providence, RI 02903

Photograph #1
Main Building, west (left) and south (right) elevations, camera facing northeast
Photographer: Edward Connors
Date Photographed: March 2016

Photograph #2
Main Building, south (left) and east (right) elevations, camera facing northwest
Photographer: Edward Connors
Date Photographed: March 2016

Photograph #3
Main Building, north (left) and west (right) elevations, camera facing southeast
Photographer: Edward Connors
Date Photographed: March 2016

Photograph #4
Detail of southeast corner of Main Building, camera facing northwest
Photographer: Edward Connors
Date Photographed: March 2016

Photograph #5
Main Building, interior of Malt Mill core, room 301, camera facing southeast
Photographer: Richard Greenwood
Date Photographed: May 2014

Photograph #6
Main Building, interior of Malt Mill core, room 202A, camera facing southeast
Photographer: Richard Greenwood
Date Photographed: May 2014

Photograph #7
Main Building, interior of Brew House core, room 302, camera facing southeast. Note floor patches.
Photographer: Richard Greenwood
Date Photographed: May 2014

Photograph #8
Main Building, interior of Stock House core, room 204 (Fermenting), camera facing southwest
Photographer: Edward Connors
Date Photographed: March 2016

Photograph #9
Main Building, interior of Lager Racking core, room 306, camera facing west
Photographer: Richard Greenwood
Date Photographed: May 2014

Photograph #10
Main Building, interior of Lager Wash House, room 109, camera facing northeast
Photographer: Richard Greenwood
Date Photographed: May 2014

Photograph #11
Main Building, interior of Engine/Refrigeration House, room 107, showing mezzanine level with main floor level below. Camera facing northwest.
Photographer: Edward Connors
Date Photographed: March 2016

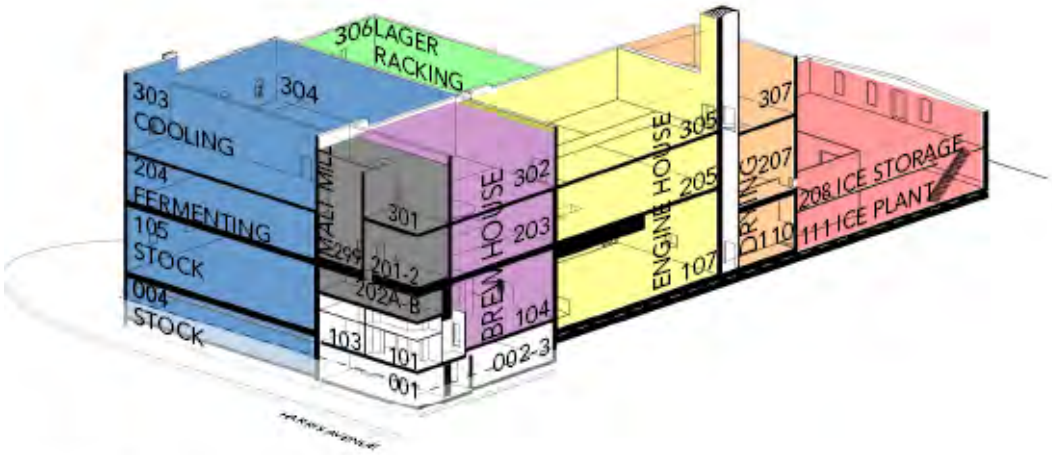
Photograph #12
Ice Plant, interior, room 111, camera facing northeast
Photographer: Richard Greenwood
Date Photographed: May 2014

Photograph #13
Second Boiler House, west (left) and south (right) elevations, camera facing northeast
Photographer: Edward Connors
Date Photographed: March 2016

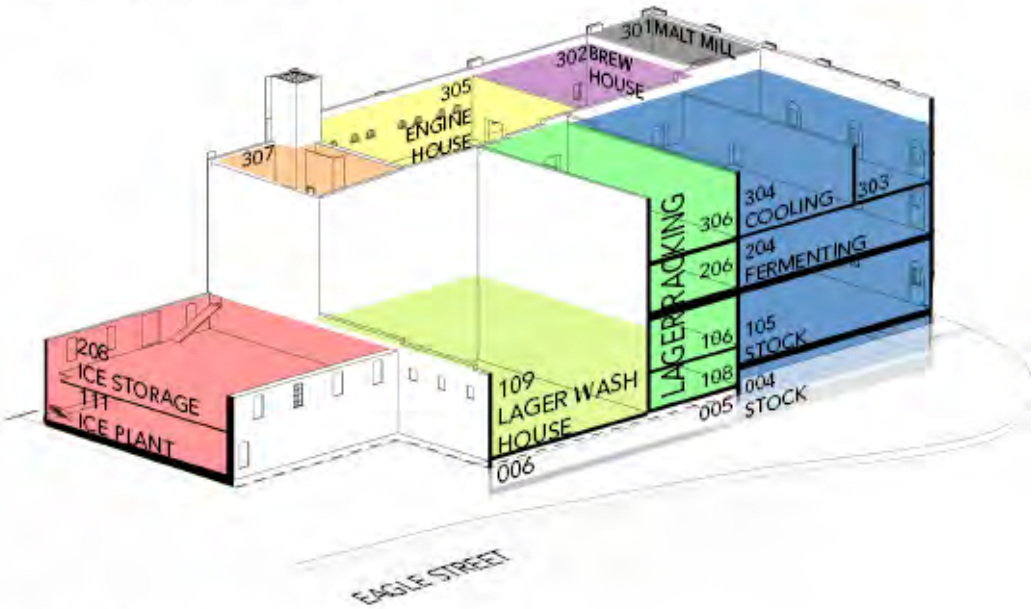
Paperwork Reduction Act Statement: This information is being collected for applications to the National Register of Historic Places to nominate properties for listing or determine eligibility for listing, to list properties, and to amend existing listings. Response to this request is required to obtain a benefit in accordance with the National Historic Preservation Act, as amended (16 U.S.C.460 et seq.).

Estimated Burden Statement: Public reporting burden for this form is estimated to average 100 hours per response including time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding this burden estimate or any aspect of this form to the Office of Planning and Performance Management. U.S. Dept. of the Interior, 1849 C. Street, NW, Washington, DC.

Additional Information



VIEW: Harris Avenue from Southeast



VIEW: Eagle Street from Northwest

Figure 1
American Brewing Co. existing conditions
with room numbers and function
illustration courtesy of Dual Studio

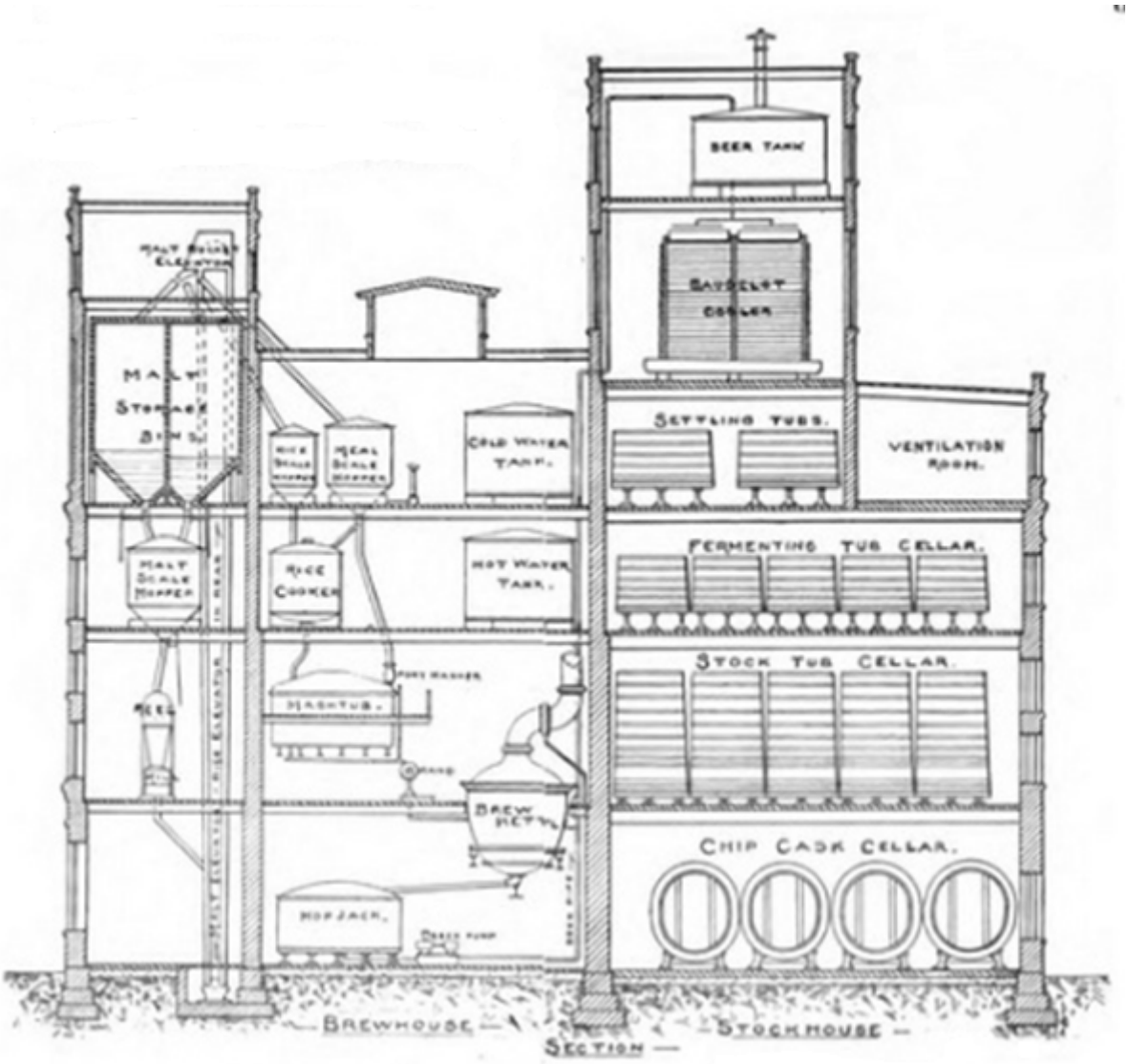
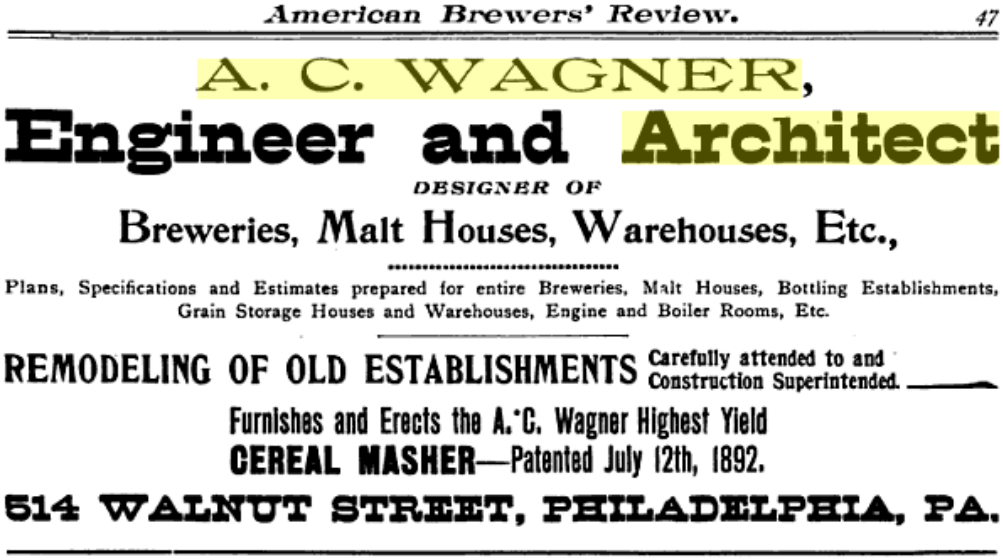


Figure 2
Typical gravitation brewery
from *American Handy Book of the Brewing, Malting and Auxiliary Trades* (1908)



American Brewers' Review. 47

A. C. WAGNER,

Engineer and Architect

DESIGNER OF

Breweries, Malt Houses, Warehouses, Etc.,

Plans, Specifications and Estimates prepared for entire Breweries, Malt Houses, Bottling Establishments, Grain Storage Houses and Warehouses, Engine and Boiler Rooms, Etc.

REMODELING OF OLD ESTABLISHMENTS Carefully attended to and Construction Superintended.

Furnishes and Erects the A. C. Wagner Highest Yield
CEREAL MASHER—Patented July 12th, 1892.

514 WALNUT STREET, PHILADELPHIA, PA.

Figure 3

Advertisement from *American Brewers' Review*, 1896

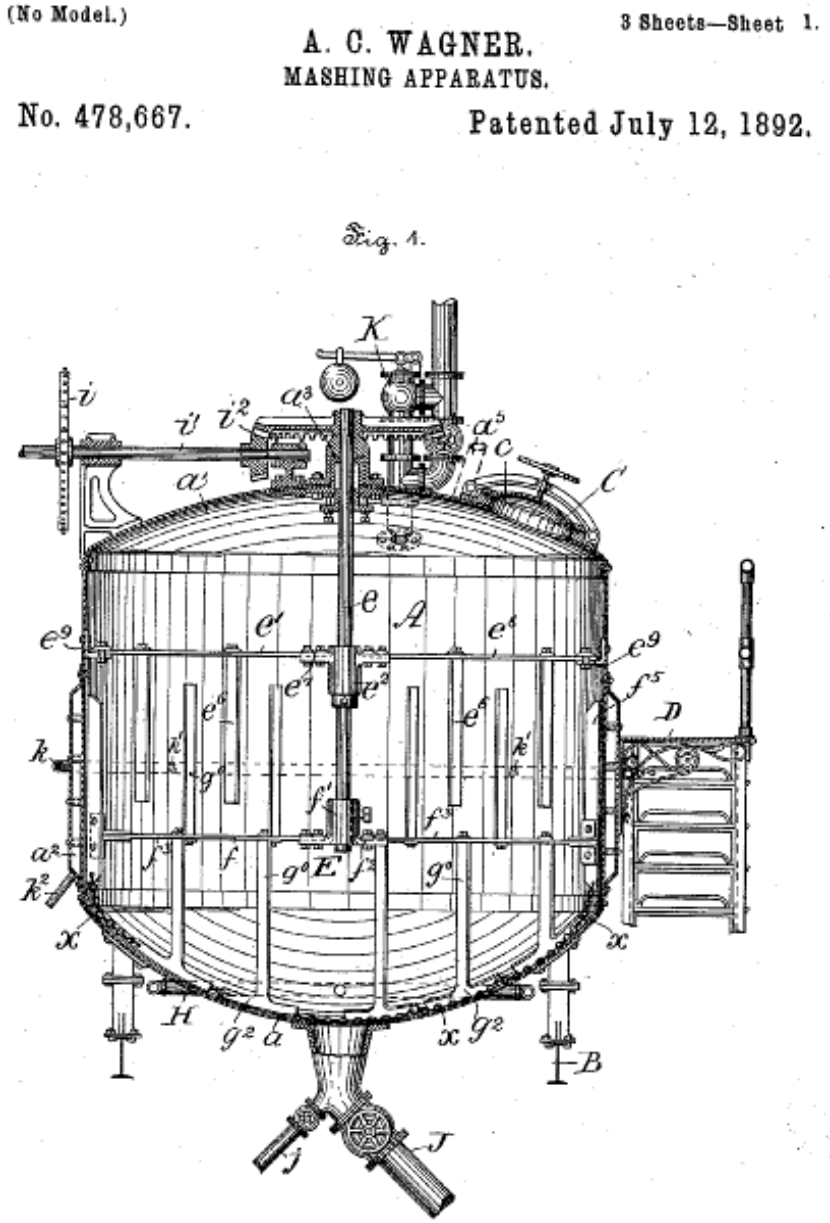


Figure 4
Adam C. Wagner, *Mashing Apparatus*
U.S. Patent No. 478,667, granted July 12, 1892
Note: This illustration depicts one of three variations of the apparatus specified in the patent. In later advertisements wagner also called this a "Cereal Masher."

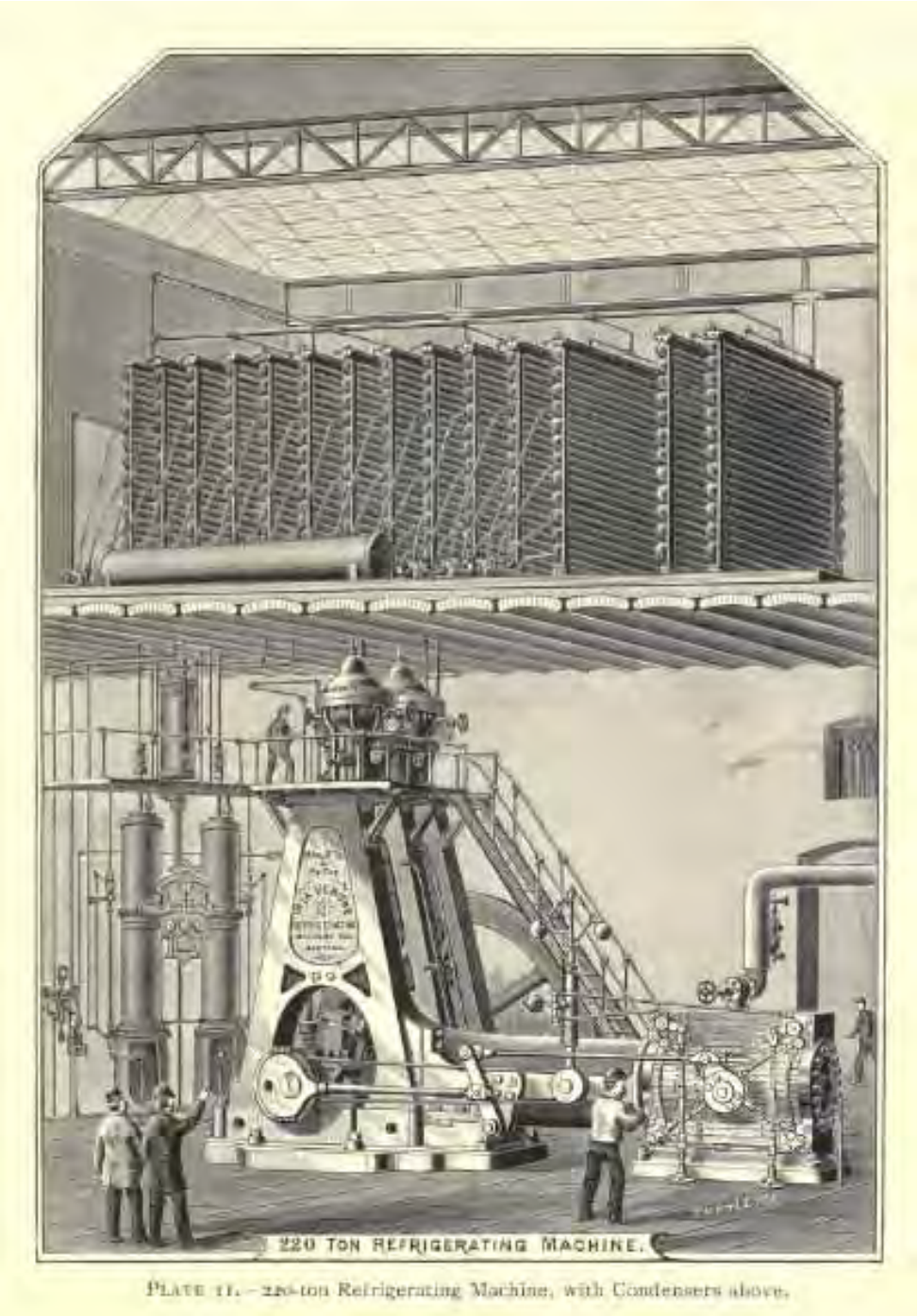


PLATE II. – 220-ton Refrigerating Machine, with Condensers above.

Figure 5

Illustration from De LaVergne Refrigeration Machine Company catalog (1896)
showing arrangement of steam engine and compressor on one floor and condensers on floor above.
Note jack arch floor/ceiling separating the two functions.

Figure 6
Fermenting Room showing arrangement of vats and cooling apparatus
Illustration from De LaVergne Refrigeration Machine Co. catalog (1896)

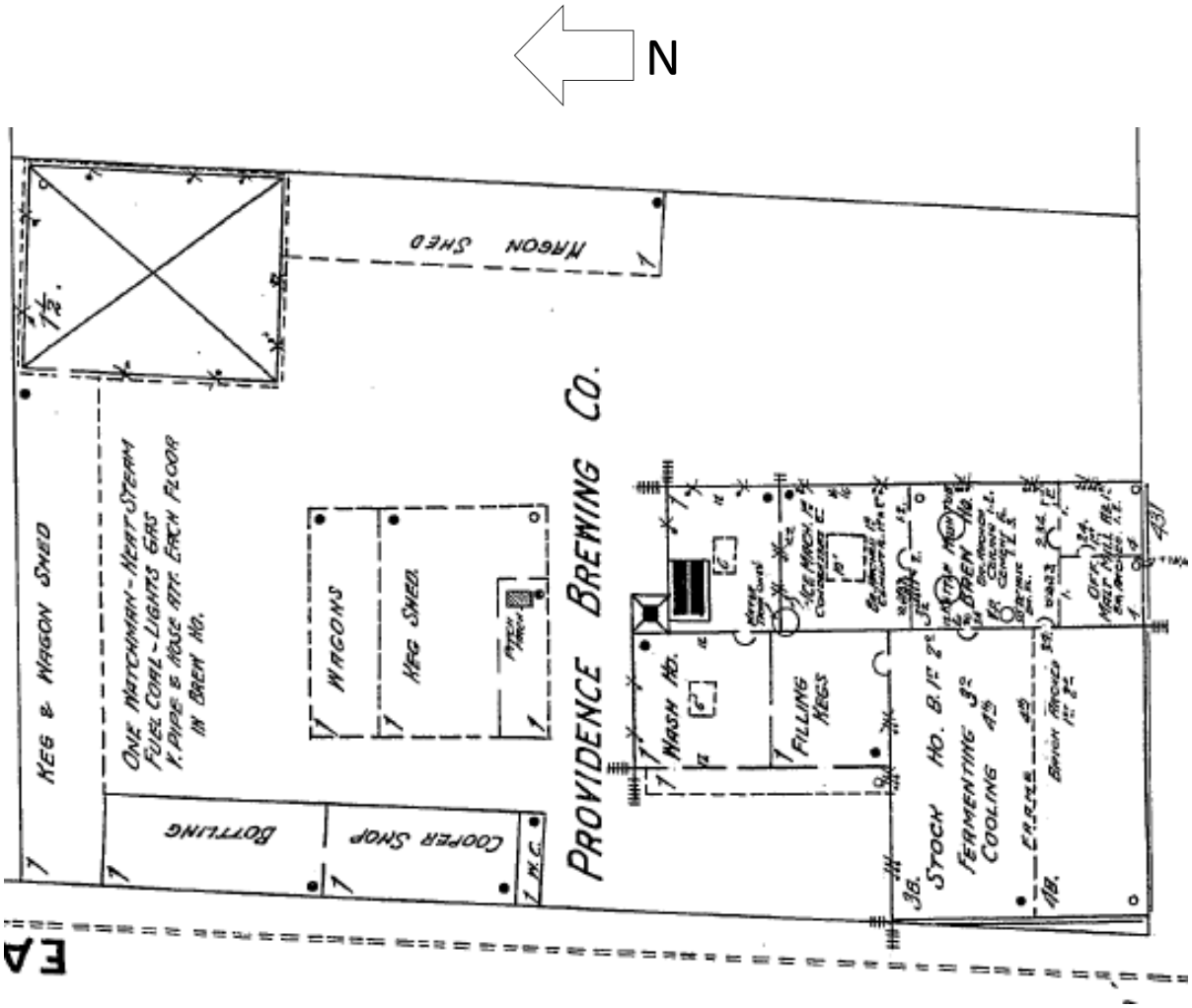


Figure 7
Detail from 1899 Sanborn Fire Insurance drawing showing plant as built in 1892 and renamed Providence Brewing Company. Note internal boilers (two black bars in the upper part of the plan).

Figure 8
Halftone illustration of Providence Brewing Co. before 1911 expansion
Board of Trade Journal (1910)

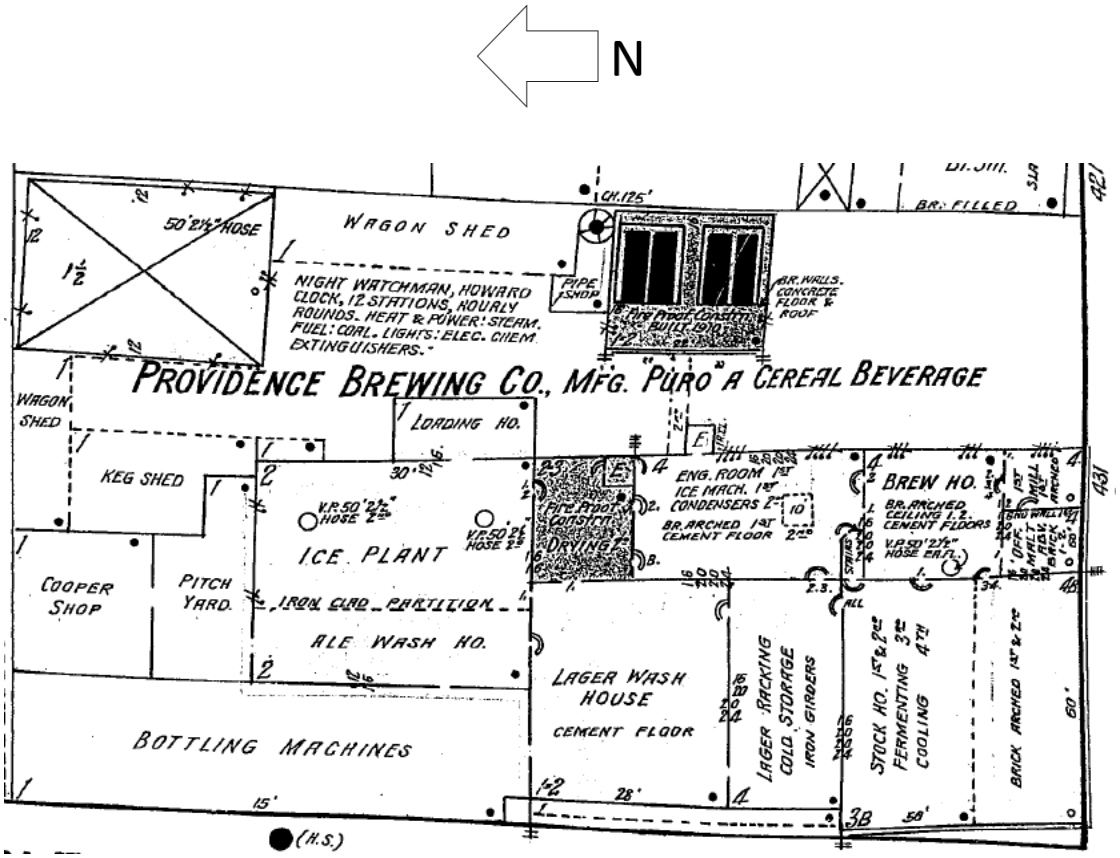


Figure 9
Detail from 1921 Sanborn Fire Insurance drawing showing plant
as expanded in 1911 and prohibition-era non-alcoholic beverage manufacture

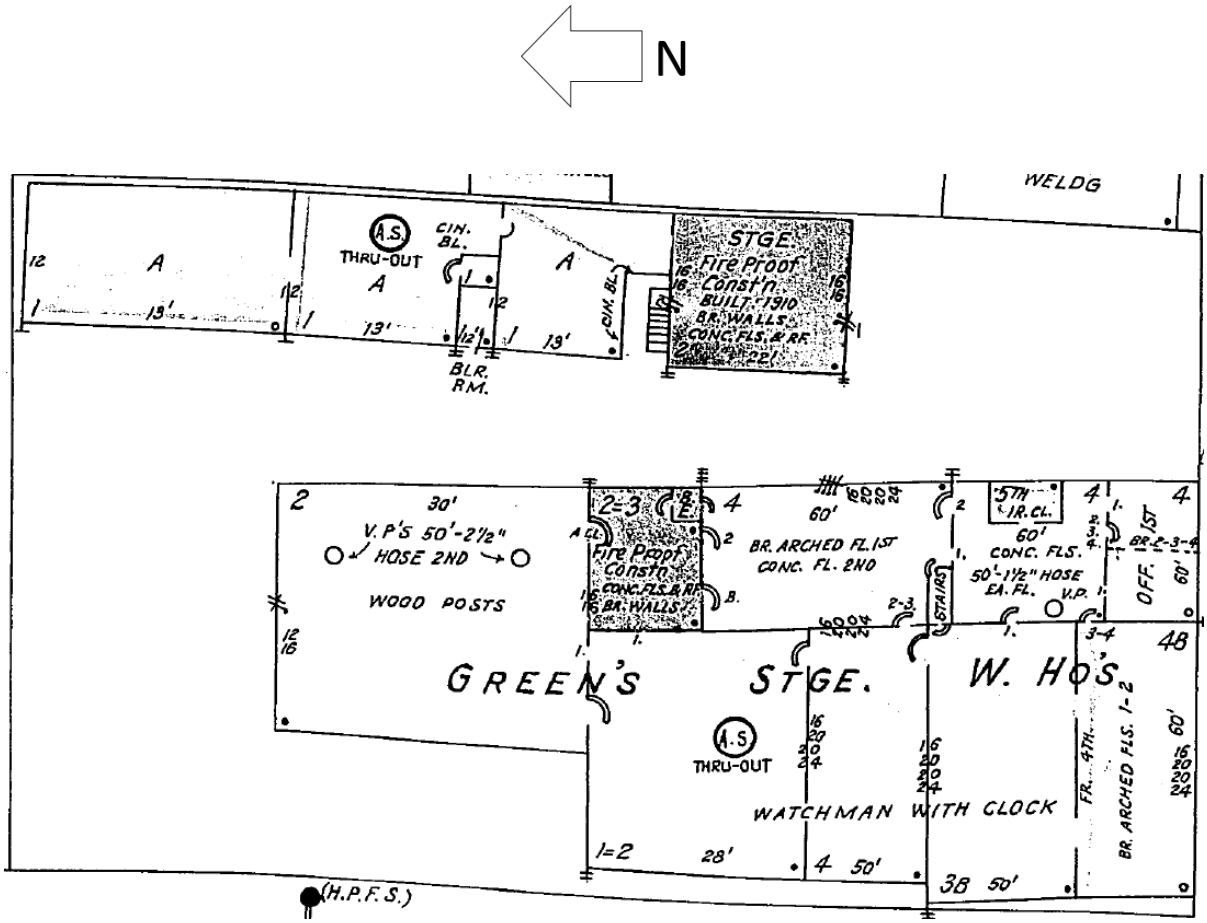


Figure 10
Detail from 1951 Sanborn Fire Insurance drawing showing
post-brewery use as a moving and storage warehouse,
demolition of rear sheds, and automobile buildings to north of Boiler House.

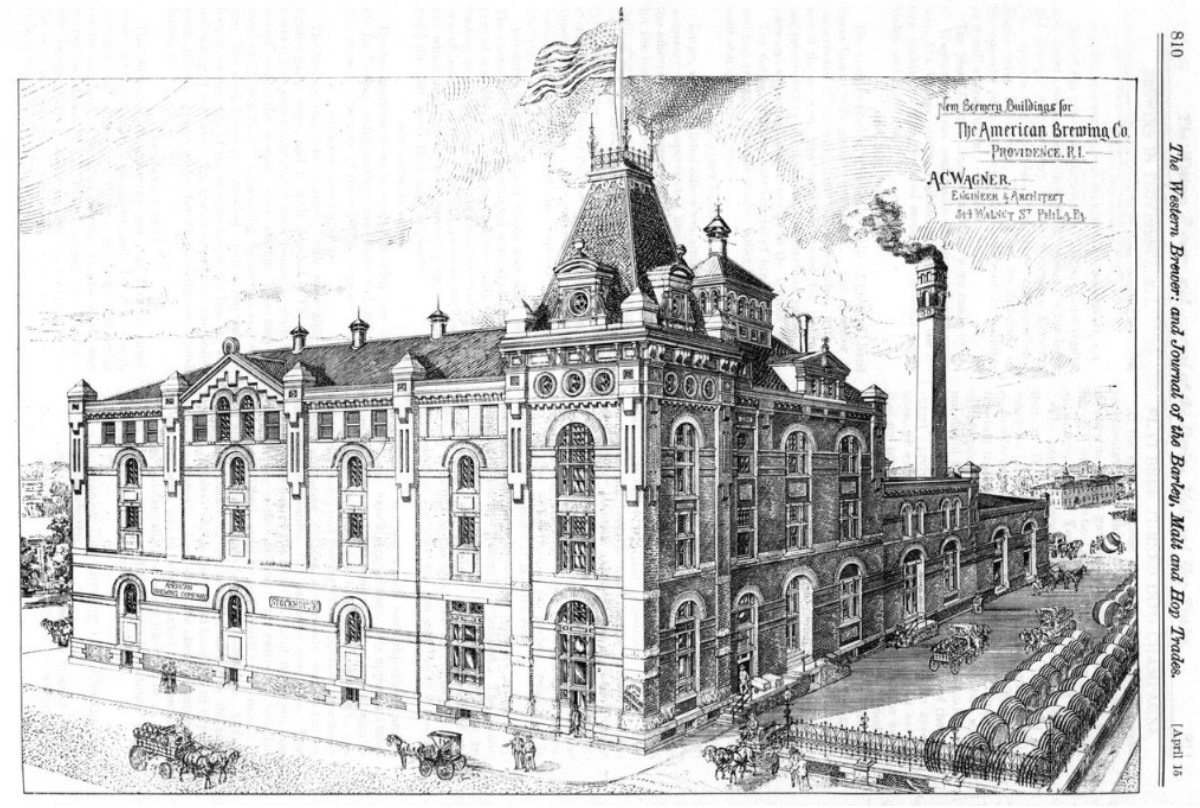


Figure 11
"New Brewery Buildings for American Brewing Co., Providence, R.I."
Illustration from *Western Brewer* XVII (15 April 1892): 810

The following article appeared with the above illustration in the Western Brewer *XVII, April 15, 1892, pp. 810-1.*

A Handsome Brewery Now in Course of Erection

One of the most conspicuous and handsomest buildings under course of erection in Providence is the large and massive new brewery of the American Brewing Co., approaching completion at Harris avenue and Eagle street, Providence, R.I., which we illustrate on the opposite page, the cut giving a view of the building as it will appear when completed.

The plans for this artistic building were made by A.C. Wagner, brewers' and maltsters' engineer and architect, 514 Walnut street, Philadelphia, Pa., and the entire building is being erected under his personal supervision and direction.

General Description

The entire exterior brewery is built of pressed, hard burnt brick, with granite trimming. The interior is constructed of wrought iron, which together with the use of the most modern appliances used for the brewing process will place it among the foremost of the complete and well equipped breweries in the United States.

The various departments consist of brew house, beer and hop storage, machine house, boiler house, mill and malt storage, offices, etc.

First Floor

Large, well ventilated offices containing vaults for the necessary books, papers, etc., and private offices for the officers of the company and a spacious meeting room for the board of directors, are located on the first floor. Adjoining the office is the brew house, containing a 300-barrel kettle for brewing. The brew house is of the open type, with a nice cupola-form ventilator, thus further giving the brew house interior and exterior an imposing appearance. The brew house contains all the necessary implements of the latest and improved pattern for brewing.

Adjoining this is the mill room and malt storage. The entire mill room is arranged with modern and improved machinery, all inclosed [sic] by fire walls and doors leading to the different adjoining apartments, which are also of iron, so as to prevent any possible explosion or fire which might occur from spreading any further beyond the spot where they may originate.

Ice Machine Room

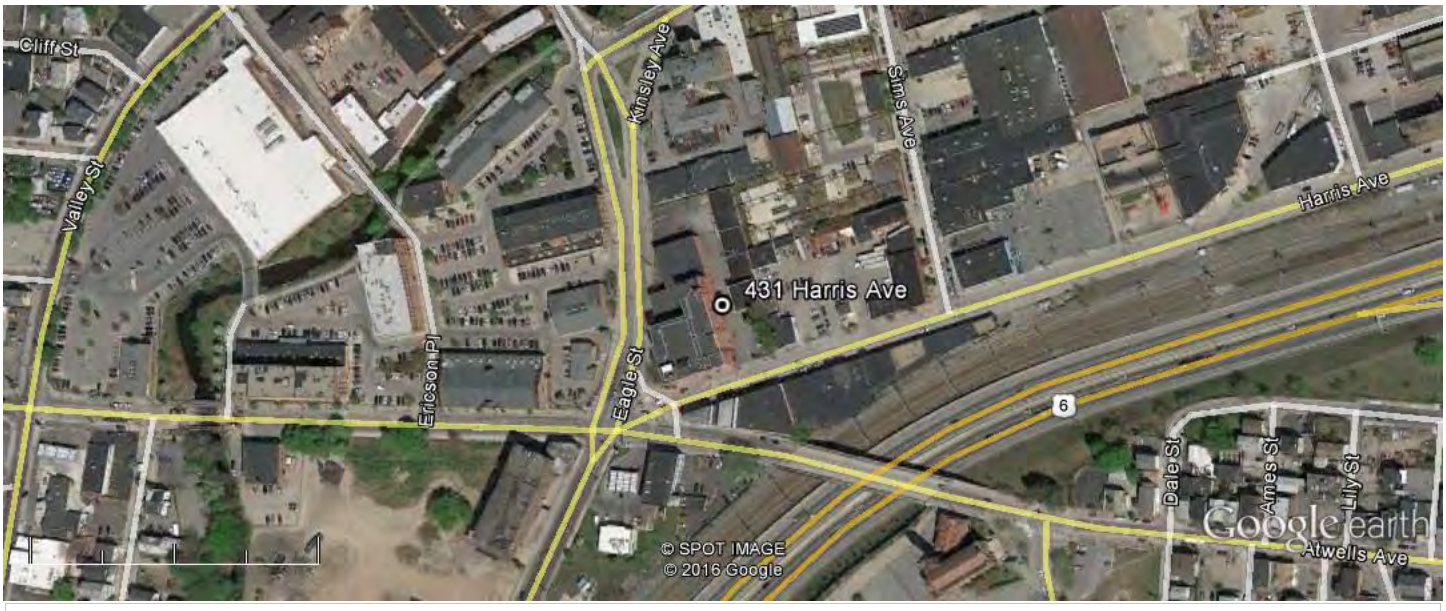
The ice machine room is equipped with two 65-ton De LaVergne refrigerating machines, and adjoining this room is a battery of three 100-horse power boilers.

Storage and Cellars

The storage house is arranged with wide and well lighted gang ways, and is well drained. The first or lower cellar, also cellar under brew house, contain 125-barrel casks; the second story storage vats; and the third and fourth floors, fermenting rooms and hop storage. The wash house and racking room is conveniently located in the rear of the storage house for loading and unloading of the beer. An artesian well near the boiler room throws ample water for the condensers, wash house, etc.

The Management

The officers of the company are Jas. Hanley, president; R. Grimes, vice-president, and John E. Good, secretary and treasurer. There is no doubt that under the management of Mr. James Hanley as president, who is also the owner of the Rhode Island (ale) brewery, who brings to the management his large experience in this line, the future success of the new enterprise is fully assured.



American Brewing Company 431 Harris Ave, Providence, RI
Coordinates: Zone 19 Easting 297809.44 Northing 4633225.04

431 Harris Ave

431 Harris Ave
Providence, RI 02909

Google earth

feet 1000

meters 400

EAST COAST
CIRCUIT BREAKERS • FUSES
TRANSFORMERS • STARTERS
SWITCHES • BUS DUCT ETC.

CAPITAL RESOURCE
MANAGEMENT

041
040
033
036

E.C.B.C.
Customer Entrance
CIRCUIT BREAKERS • FUSES
TRANSFORMERS • STARTERS
SWITCHES • BUS DUCT ETC.