Prospectus Supplement No. 27
(To Prospectus dated July 2, 2026)

Filed pursuant to Rule 424(b)(3)
Registration No. 333-296944

Wheeler Real Estate Investment Trust, Inc.

This is Prospectus Supplement No. 27 (this "Prospectus Supplement") to our Prospectus, dated July 2, 2026 (the "Prospectus"), relating to the issuance from time to time by Wheeler Real Estate Investment Trust, Inc. of up to 100,090,365 shares of our common stock, par value $0.01 ("Common Stock"). Terms used but not defined in this Prospectus Supplement have the meanings ascribed to them in the Prospectus.

We have attached to this Prospectus Supplement our Current Report on Form 8-K filed on November 9, 2026. The attached information updates and supplements, and should be read together with, the Prospectus, as supplemented from time to time.

Investing in our Common Stock involves a high degree of risk. You should review carefully the risks and uncertainties described under the heading "*Risk Factors*" beginning on page 6 of the Prospectus, and under similar headings in any amendments or supplements to the Prospectus.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or passed upon the adequacy or accuracy of the Prospectus. Any representation to the contrary is a criminal offense.

The date of this Prospectus Supplement is November 9, 2026.

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION

WASHINGTON, D.C. 20549

FORM 8-K

CURRENT REPORT
PURSUANT TO SECTION 13 OR 15(d) OF THE
SECURITIES EXCHANGE ACT OF 1934

Date of report (date of earliest event reported): **November 3, 2026**

WHEELER REAL ESTATE INVESTMENT TRUST, INC.
(Exact name of registrant as specified in its charter)

Maryland	**001-35713**	**45-2681082**
(State or other jurisdiction of incorporation or organization)	(Commission File Number)	(IRS Employer Identification No.)

2529 Virginia Beach Blvd. Virginia Beach, VA	**23452**
(Address of principal executive offices)	(Zip code)

Registrant's telephone number, including area code: **(757) 627-9088**

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligations of the registrant under any of the following provisions:

☐ Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)
☐ Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)
☐ Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))
☐ Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Indicate by check mark whether the registrant is an emerging growth company as defined in Rule 405 of the Securities Act of 1933 (§230.405 of this chapter) or Rule 12b-2 of the Securities Exchange Act of 1934 (§240.12b-2 of this chapter).
Emerging growth company ☐

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	**Trading Symbol(s)**	**Name of each exchange on which registered**
Common Stock, $0.01 par value per share	WHLR	Nasdaq Capital Market
Series B Preferred Stock	WHLRP	Nasdaq Capital Market
Series D Cumulative Convertible Preferred Stock	WHLRD	Nasdaq Capital Market
7.00% Subordinated Convertible Notes due 2031	WHLRL	Nasdaq Capital Market

Item 3.02 Unregistered Sales of Equity Securities

On November 3, 2026, Wheeler Real Estate Investment Trust, Inc. (the "Company") agreed to issue an aggregate amount of 809,880 shares of its common stock, $0.01 par value per share (the "Common Stock"), to two unaffiliated holders of the Company's securities (together, the "November 3 Investors") in separate exchanges for an aggregate amount of 32,589 shares of the Company's Series B Preferred Stock (the "Series B Preferred Stock") and 2,550 shares of the Company's Series D Cumulative Convertible Preferred Stock (the "Series D Preferred Stock" and, together with the Series B Preferred Stock, the "Preferred Stock"). One transaction involved the issuance of one hundred forty-two shares of Common Stock in exchange for one share of the Series D Preferred Stock and four shares of the Series B Preferred Stock. The other transaction involved the issuance of twenty shares of Common Stock in exchange for one share of Series D Preferred Stock. The Company expects the transactions to settle in accordance with customary settlement cycles.

On November 6, 2026, the Company agreed to issue 358,000 shares of Common Stock to an unaffiliated holder of the Company's securities (the "November 6 Investor") in exchange for 8,000 shares of the Series B Preferred Stock and 2,000 shares of the Series D Preferred Stock in one transaction. The transaction involved the issuance of one hundred seventy-nine shares of Common Stock in exchange for four shares of Series B Preferred Stock and one share of Series D Preferred Stock. The Company expects the transaction to settle in accordance with customary settlement cycles.

The Company did not receive any cash proceeds in these transactions, and the shares of the Preferred Stock exchanged have been retired and cancelled.

The Company issued the Common Stock to the November 3 Investors and the November 6 Investor (together, the "Investors") in reliance upon the exemption from the registration requirements of the Securities Act of 1933, as amended (the "Securities Act"), contained in Section 3(a)(9) of the Securities Act on the basis that the issuance of Common Stock to the Investors constituted an exchange with existing holders of the Company's securities, and no commission or other remuneration was paid or given directly or indirectly for soliciting such transactions.

This Current Report on Form 8-K does not constitute an offer to exchange any securities of the Company for the Common Stock, the Series D Preferred Stock, the Series B Preferred Stock or other securities of the Company.

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

WHEELER REAL ESTATE INVESTMENT TRUST, INC.

By: /s/ M. Andrew Franklin
Name: M. Andrew Franklin
Title: Chief Executive Officer and President

Dated: November 9, 2026