

SCHEDULE 13G

Under the Securities Exchange Act of 1934

(Amendment No.)*

Name of Issuer - American Tower Corp.

Title or Class of Securities - Common Stock

CUSIP Number - 029912201

Check the following box if a fee is being paid with this statement [].

Cusip No. 029912201

Page 2 of 6 Pages

1. Name of Reporting Person (S.S. or I.R.S. Identification No. of above person)

American Century Investment Management, Inc. - 44-0640487

2. Check the appropriate box if a member of a group* - N/A

3. SEC Use Only

4. Citizenship or place of organization

Delaware

5. Sole voting power

9,638,100

6. Shared voting power

0

7. Sole dispositive power

9,638,100

8. Shared dispositive power

0

9. Aggregate amount beneficially owned by each reporting person

9,638,100

10. Check box if the aggregate amount in Row (9) excludes certain shares

N/A

11. Percent of class represented by amount in Row 9

5.7%

12. Type of reporting person*

IA

1. Name of Reporting Person (S.S. or I.R.S. Identification No. of above person)

American Century Mutual Funds, Inc. - 44-6006315

2. Check the appropriate box if a member of a group* - N/A

3. SEC Use Only

4. Citizenship or place of organization

Maryland

5. Sole voting power

9,535,000

6. Shared voting power

0

7. Sole dispositive power

9,535,000

8. Shared dispositive power

0

9. Aggregate amount beneficially owned by each reporting person

9,535,000

10. Check box if the aggregate amount in Row (9) excludes certain shares

N/A

11. Percent of class represented by amount in Row 9

5.7%

12. Type of reporting person*

IV

SCHEDULE 13G

Item 1(a). NAME OF ISSUER

American Tower Corp.

Item 1(b). ADDRESS OF ISSUER'S PRINCIPAL EXECUTIVE OFFICES

116 Huntington Avenue
Boston, MA 02116-5749

Item 2(a). NAME OF PERSONS FILING

American Century Investment Management, Inc. on its behalf and on behalf of:

American Century Mutual Funds, Inc.

Item 2(b). ADDRESS OF PRINCIPAL BUSINESS OFFICE OR, IF NONE, RESIDENCE

4500 Main Street
P.O. Box 418210
Kansas City, MO 64141-9210
Attn: David H. Reinmiller

Item 2(c). CITIZENSHIP

Delaware

Item 2(d). TITLE OF CLASS OF SECURITIES

Common Stock

Item 2(e). CUSIP NO.

029912201

Item 3. IF THIS STATEMENT IS FILED PURSUANT TO RULES 13d-1(b) OR 13d-2(b), CHECK WHETHER THE PERSON FILING IS A

(g) [X] Registered Investment Adviser, in accordance with Rule 13d-1(b)(ii)(E) (Note: See Item 7).

Item 4. OWNERSHIP

(a) Aggregate amount beneficially owned:

9,638,100

(b) Percent of class:

5.7%

(c) Number of shares as to which such person has:

(i) sole power to vote or to direct the vote:

9,638,100

(ii) shared power to vote or to direct the vote:

0

(iii) sole power to dispose or to direct the disposition of:

9,638,100

(iv) shared power to dispose or to direct the disposition of:

0

Item 5. OWNERSHIP OF FIVE PERCENT OR LESS OF A CLASS

If this statement is being filed to report the fact that as of the date hereof the reporting person has ceased to be the beneficial owner of more than five percent of the class of securities, check the following [].

Item 6. OWNERSHIP OF MORE THAN FIVE PERCENT ON BEHALF OF ANOTHER PERSON

American Century Investment Management, Inc. ("ACIM"), a registered investment adviser, manages, pursuant to management agreements, the investments of thirteen registered investment companies, American Century Mutual Funds, Inc., American Century World Mutual Funds, Inc., American Century Capital Portfolios, Inc., American Century Variable Portfolios, Inc., American Century Premium Reserves, Inc., American Century Strategic Asset Allocations, Inc., American Century Municipal Trust, American Century Quantitative Equity Funds, Inc., American Century International Bond Funds, Inc., American Century Investment Trust, American Century Government Income Trust, American Century Target Maturities Trust, and American Century California Tax-Free and Municipal Funds, Inc., and manages, pursuant to sub-advisory agreements, the investments of six registered investment companies, American Skandia Trust, American Skandia Advisor Funds, Inc., Style Select Series, Inc., Mainstay VP Series Fund, Inc., Principal Investors Fund, Inc. and North American Funds Variable Product Series I. ACIM also manages the assets of institutional investor accounts. The securities that are the subject of this report are owned by and held for such investment companies and separate institutional investor accounts. Any dividends received from such securities, or the proceeds of any sale of such securities, are for the benefit of, and are held for such investment companies and separate institutional investor accounts.

American Century Mutual Funds, Inc. owned more than 5% of the class of securities which are the subject of this report.

Item 7. IDENTIFICATION AND CLASSIFICATION OF THE SUBSIDIARY WHICH ACQUIRED THE SECURITY BEING REPORTED ON BY THE PARENT HOLDING COMPANY

N/A

Item 8. IDENTIFICATION AND CLASSIFICATION OF MEMBERS OF THE GROUP

N/A

Item 9. NOTICE OF DISSOLUTION OF GROUP

N/A

Item 10. CERTIFICATION

By signing below I certify that, to the best of my knowledge and belief, the securities referred to above were acquired in the ordinary course of business and were not acquired for the purpose of and do not have the effect of changing or influencing the control of the issuer of such securities and were not acquired in connection with or as a participant in any transaction having such purpose or effect.

SIGNATURE

After reasonable inquiry and to the best of my knowledge and belief, I certify that the information set forth in this statement is true, complete and correct.

February 13, 2001
Date

AMERICAN CENTURY INVESTMENT MANAGEMENT, INC.

By: /s/David C. Tucker

David C. Tucker
Senior Vice President
and General Counsel

EXHIBIT A

Rule 13d-1(f)(1)(iii) Agreement

Each of the undersigned hereby agrees and consents to the execution and joint filing on its behalf by American Century Investment Management, Inc. of this Schedule 13G respecting the beneficial ownership of the securities which are the subject of this schedule at December 31, 2000.

Dated this 13th day of February, 2001.

American Century Investment Management, Inc.

By: /s/David C. Tucker

David C. Tucker
Senior Vice President
and General Counsel

American Century Mutual Funds, Inc.

By: /s/David C. Tucker

David C. Tucker
Senior Vice President
and General Counsel