By ANDY BATTAGLIA

On Wednesday, the artist James Turrell was tending the early stages of a new installation that will transform the Guggenheim Museum's rotunda into a space of his own making. As construction clamored all around him, he looked up, serenely, through a series of vast elliptical shapes toward the sky. His ambition, as it has been for much of the past half-century, is to create something weighty and monumental, but his medium is mainly light—the kind that is immaterial yet suggestive as it shines.

"It comes from the sun," Mr. Turrell said of the idea behind his installation, which will serve as the centerpiece of "James Turrell," an eagerly anticipated exhibition of the artist's work opening June 21. The title of the work is more indicative of matters on its maker's mind: "Aten Reign."

Over breakfast early the morning before, Mr. Turrell had related the name to the ancient Egyptian deification of light, a legacy he has celebrated over a storied career working with luminescence and the limits of human perception. To summon realms beyond, "Aten Reign" will situate museumgoers in a circle below a seemingly infinite column of soft, modulating light, with optical strategies employed to produce a sense of boundlessness and perspectival blur. "We don't generally look at light—we illuminate other things with light," Mr. Turrell said. "But I'm interested in the light itself, its materiality or its presence in
Such has been the subject of Mr. Turrell’s art since the 1960s, when he started working with projections of light to simulate, to the easily tricked eye, three-dimensional objects and limitless expanses of space.

"With James, you go into the void," said Carmen Gimenez, curator of the Guggenheim show, which will open after six years in the making. "Everything is covered, full of light. He is transforming the core. You will not recognize the Guggenheim—you will see it in a different way."

Though his ethereal, evanescent work played a role in the so-called dematerialization of art beginning decades ago—a process associated with theoretical minimalists, conceptualists and other "Light and Space" artists including Robert Irwin and Bruce Nauman—Mr. Turrell regards it as part of a more holistic tradition.

"Art history is littered with work that involves light," he said, invoking the ways that painters and sculptors, consciously or not, ply properties of light for the sake of staging and drama. "It's really not that different—except I want to use light itself."

That desire, developed alongside advances in lighting technology since his career began, has been realized in a variety of forms, historical samples of which will be on display in annex galleries at the Guggenheim. One such work, "Afrum I (White)" from 1967, projects the illusion of a cube in the corner of a room. Photo documentation of another piece, "Meeting," from 1989-90, represents Mr. Turrell's continuing series of architectural "skyspace" structures, which mingle upward projections of light with exposed bits of natural sky to create a surreal sense of continuity between inside and out. (An active local skyspace is open for view year-round at MoMA PS1 in Queens.)

Mr. Turrell's fascination with light traces back to his upbringing as a Quaker and special sympathies that his past engendered with religious ideas of the "light inside."

"Things spiritual are almost always described using the vocabulary of light," he said. "But we [all] have a strong primal relationship to it. We drink light for vitamin D. It's food."

The new installation "Aten Reign" makes use of skyspace-like properties, with special dispensation owing to its setting's hallowed Frank Lloyd Wright design. "I wasn't allowed to take the roof off the Guggenheim," Mr. Turrell said.

The subtly shifting optical effects of "Aten Reign"—empowered by colored LED lights similar to those used to illuminate the Empire State Building—will be aided by the presence of the museum's grand glass skylight, as well as the building's uprising spiral shape. "It has a great verticality," Mr. Turrell said, "and that's what I'm working with."

The installation's height and sense of monumentality relate it to another of the artist's ambitious works—a distant one not scheduled to open anytime soon. Though he keeps an apartment in Gramercy Park, Mr. Turrell spends much of his time living in the desert of Arizona, where his decades-long project "Roden Crater" aims to convert an extinct volcano into a sort of geological observatory, with chambers constructed to capture light from throughout the cosmos. Still years from completion, aspects of it have been designed to offer ideal views of certain astronomical occurrences 2,000 years in the future.

In New York, his objectives are much more immediate. The crowds expected to fill the Guggenheim show beginning next week will join those already assembling for simultaneous museum retrospectives devoted to Mr. Turrell in Houston and Los Angeles.
Angeles.

"The thing that has really struck me about his work is how personal an experience it produces for people," said Nat Trotman, a Guggenheim curator who helped marshal the three-museum immersion.

For Mr. Turrell, the local light in New York has its own natural charms, too. "Here we have a maritime light with moisture in it," he said. "In Arizona, we're at 7,000 feet, so we're above half of the world's atmosphere. It's crisp but hard, a side-raking light that can be revealing but doesn't have the softness that maritime air has. Here we have quite beautiful light."

He added: "All of those lights I've come to work with, and to love."

A version of this article appeared June 15, 2013, on page A22 in the U.S. edition of The Wall Street Journal, with the headline: Iconic Museum Seen in a New Light.