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UNITED STATES FEDERAL BUILDING  
San Francisco, California

2041 colorado avenue  
santa monica, california 90404

t: 310.453.2247  
f: 310.829.3270

studio@morphosis.net  
www.morphosis.net

*When architecture engages social, cultural, political, and ethical currents, it has the potential to transform the way we see the world and our place in it.*

*It is from this intersection of broad societal currents that we approached the design for the new Federal Building in San Francisco. Our primary interest was to produce a performance-driven building that would fundamentally transform its urban surroundings, the nature of the workplace, and the experiences of the people who use it while making intelligent use of natural resources.*

*For me, this project represents the epitome of an optimistic architecture; an architecture that synthesizes its complex forces and realities into a coherent whole.*

Thom Mayne

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## **PROJECT DATA**

### **Location**

7th and Mission Streets

### **Site Description**

91,000 square feet

### **Building Size**

605,000 Gross Square Feet

450,000 Rentable Square Feet (GSA should confirm that this number is correct)

### **Tower**

18 Stories - 240 Feet High - 65 Feet Wide

### **Cost of Construction**

\$144 Million

### **Developer**

U.S. General Services Administration

### **Lead Design Architect**

Morphosis

### **Executive Architect**

Smith Group, Inc.

### **Construction Management**

Hunt Construction Group

### **General Contractor**

Dick Corporation/Morganti General Contractors

### **Key Dates:**

Design Start: September 2000

Construction Start: March 2003

Construction Complete: March 2007

Occupancy: Spring 2007

### **Number of Employees**

Approximately 1,500

### **Major Tenants**

U.S. Department of Labor

U.S. Department of Health and Human Services

U.S. Social Security Administration

U.S. Department of Agriculture

U.S. Office of Personnel Management

U.S. Department of Defense

### **Shared Public Facilities**

Café

Health and Fitness Center

Child Care Center

Conference Facilities including multi-purpose auditorium

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### **Building Description**

The slender, 18-story, 240-foot tower creates a landmark for the City of San Francisco, while the four-story annex connects to the scale of the adjacent neighborhood. The large, open public plaza along with the shared public facilities, provide valuable assets to the community. In addition, the design redefines the culture of the workplace through office environments that boost workers' health, productivity and creativity. A dramatic example of sustainable design principles, the building's shape and orientation maximize natural airflow for cooling and ventilation, and take advantage of natural day light for the majority of the office interior. These features, combined with a number of other energy-saving elements, significantly reduce overall energy consumption compared to conventional commercial office buildings in the United States.

For more information on these and other aspects of the building, see the attached design narrative.

**For more information, contact Gene Gibson, Regional Public Affairs Officer (415) 522-3001.**

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## **PROJECT CREDITS**

### **Lead Design Architect**

Morphosis

Principal: Thom Mayne

Project Manager: Tim Christ

Project Architect: Brandon Welling

Project team: Linda Chung, Simon Demeuse, Marty Doscher, Rolando Mendoza, Eui-Sung Yi

Project Assistants: Caroline Barat, Gerald Bodziak, Crister Cantrell, Delphine Clemenson, Todd Curley

Alasdair Dixon, Haseb Faqirzada, Chris Fenton, Arthur de Ganay, Dwoyne Keith, Sohith Perera,

Kristine Solberg, Natalia Traverso Caruana

### **Executive Architect**

Smith Group, San Francisco

Project Manager: Carl Christiansen

Project Architect: Jon Gherga

Project Assistant: Belinda Wong

### **Collaborative Artists**

James Turrell, Ed Ruscha, Rupert Garcia, Hung Liu, Raymond Saunders, William Wiley

### **Structural, Mechanical, Electrical and Plumbing Engineer**

Ove Arup and Partners

Project Manager: Steve Carter

Structural Engineers: Bruce Gibbons, Steve Ratchye

Mechanical Engineer: Erin Mcconahey

### **Natural Ventilation Modeling**

Lawrence Berkeley National Laboratory

### **Landscape architect**

Richard Haag Associates Inc. with J.J.R

### **Civil Engineer**

Brian Kangas Foulk

### **Geotechnical**

Geomatrix

### **Lighting Consultant**

Horton Lees Brogden Lighting Design, Inc.

### **Signage**

Kate Keating Associates

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**Cost Estimator**

Davis Langdon

**Curtain Wall**

Curtain Wall Design & Consulting, Inc.

**Blast Consultant**

Hinman Consulting Engineers

**Code**

Rolf Jensen & Associates

**Acoustics**

Thorburn Associates

**Vertical Transportation**

Hesselberg, Keessee & Associates, Inc.

**Construction Manager**

Hunt Construction Group

**General contractor**

Dick Corporation/Morganti General Contractors

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### **GSA'S MODEL OF DESIGN EXCELLENCE**

The San Francisco Federal Building is a reflection of the GSA's commitment to design excellence and sustainable architecture. Built to serve its tenants and the community well into the next century, like the adjacent James F. Browning U.S. Courthouse (1905), the San Francisco Federal Building reflects the highest design aspirations and most innovative technology of our time.

As part of its commitment to sustainable living, the GSA works to reduce consumption of natural resources, minimize waste, and create a healthy and productive work environment for all tenants who occupy federal workspace. The San Francisco Federal Building is a demonstration of this commitment, incorporating state-of-the art technology and performance driven innovation. Tenants of the San Francisco Federal Building will enjoy sweeping views of San Francisco, and an abundance of natural light and natural ventilation that promote a healthy work environment while dramatically reducing energy consumption.

The new federal building is a slender 65-foot-wide tower rising 18 stories (240 feet) along the northern edge of the Mission and Seventh Street site. A four-story building annex adjoins the tower at the western edge of the site, helping to define the space that constitutes a new public plaza. In addition to this active plaza, the facility includes a number of resources that are available for public use, including a café, a childcare center, and a conference center.

### **Climate Control**

Throughout the year, San Francisco's design temperature ranges between 44 and 78 degrees Fahrenheit. The new San Francisco Federal Building takes advantage of the temperate climate to provide a comfortable interior environment while reducing energy consumption.

As a whole, the building is best understood as a hybrid that includes different space conditioning strategies appropriate for different locations in the building. The first five levels, with high concentrations of people and equipment, are fully air-conditioned. Above the fifth floor, the windows automatically adjust, allowing fresh air directly into the building for natural ventilation and free cooling. The window system creates a "living skin" that allows the building to breathe. Breezes pass through openings on the windward side and are vented out through the leeward wall, with control based on wind speed and direction.

A computerized system, known as the building automated system (BAS), controls and monitors all of the building's mechanical equipment including

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those devices that are used to maintain internal environmental conditions and lighting levels. On the naturally ventilated floors, the computer system opens and closes windows, vents and sunscreens in response to temperature within the building as well as external environmental conditions. The window wall features manually operated windows for occupant control of the internal environment and includes a heating system integrated into the mullions. A minimal number of central, fully enclosed offices and meeting rooms are served by local, supplemental cooling units to accommodate higher density occupancies. During the night, the BAS opens the windows to flush out heat build-up and allows the nighttime air to cool the building's concrete interior. Throughout the day the thermal mass of the exposed concrete columns, shear walls and wave-form ceilings help cool the occupants of the building.

In the tower, the design of the high-performance facades is critical to the functioning of the natural ventilation. At the southeast elevation, a perforated metal sunscreen protects the glass façade from excess solar heat gain; at the northwest elevation, a series of fixed translucent sunshades are attached to an exterior catwalk, breaking the sun's path to shade the glass. These climate specific facades give the building its distinctive appearance.

Nationally, the GSA strives to use no more than 55,000 Btu of energy per square foot per year in its buildings. The new San Francisco Federal Building is expected to surpass the GSA's target as well as California's stringent Title 24 Energy Code. The naturally ventilated floors are projected to have an average energy consumption of less than 25,000 Btu per square foot per year, a significant improvement over the national standard. The local utility provider, PG & E, has confirmed that the project will receive an energy rebate of \$250,000 at the completion of construction.

### **Electrical**

Lighting is typically the largest energy cost for an office building, representing up to 40 percent of a facility's total energy load. The new San Francisco Federal Building's lighting strategies improve the workplace and are a critical facet of this project's sustainable design. Approximately 85 percent of the workspace is illuminated with natural light.

Ambient light, the general illumination in an office, comes from sunlight channeled through the windows and reflected off walls and ceilings to extend its reach with minimum glare and intensity. With an average overall ceiling height in the tower of 13 feet, natural daylight will penetrate deep into work spaces. Powered lights are also provided to supplement the natural light. Through simple sensors, the building's automated systems manage the balance between powered and natural daylight. The powered lights are on only when people are at their workstations. Together, these approaches reduce energy used for lighting by approximately 26 percent.

### **Flexible Information Technology**

Large and flexible floor plans with power and data cabling conveniently routed through easily accessible, under floor space make workspace reconfiguration easy while reducing costs for remodeling.

### **Building Materials**

The San Francisco Federal Building incorporates building materials and construction strategies that minimize waste and energy consumption.

The building minimizes pollution by replacing high proportions of Portland cement in its concrete foundations and frame. During the manufacturing process, Portland cement is associated with very high levels of greenhouse gas emissions. In the Federal Building's concrete mixture, 50% of the pollution-intensive Portland cement is replaced with blast furnace slag, a recycled waste product from the steel industry, significantly reducing greenhouse gas emissions resulting from conventional concrete. This environmentally sound choice also results in higher-strength concrete and has a warm, light-colored tone that contributes to the favorable daylight penetration within the office space.

The GSA mandated that 75 percent of materials used during construction be recycled. Currently, the project is recycling 87 percent of its waste material.

Carpet, paint and furniture were carefully considered with respect to the project's sustainable goals.

### **Work Environment**

Several features support federal initiatives to promote health and improve productivity: the location of the cafeteria on street level across the plaza and the use of skip-stop elevators—elevators that stop at every third floor, opening onto soaring lobbies with wide, open stairs—promote cardiovascular fitness and reduce lost work hours. These lobbies and stairs, in addition to a sky garden and a 90-foot high entry lobby at street level, provide a comfortable setting for informal meetings and social interaction. A handicap accessible elevator that travels to every floor is also available.

The tower's high ceilings and glass facades provide 85 percent of the building's tenants with views overlooking the city.

The outer perimeter of the tower is configured with open offices and 52-inch-high workstation partitions, maximizing access to natural light. Fritted glass panels that enclose meeting rooms and offices located in the middle "spine" of the tower, provide both privacy and access to natural light.

### **Leadership in Energy and Environmental Design (LEED) Rating**

Managed by the U.S. Green Building Council, LEED's Green Building Rating System is the nationally accepted benchmark for the design, construction, and operation of high performance green buildings. LEED's whole-building approach to sustainability recognizes performance in five key areas of human and environmental health: sustainable site development, water savings, energy efficiency, materials selection, and indoor environmental quality. Certification is awarded one year after occupancy.

Even though the new San Francisco Federal Building was designed five years before the LEED Certification System was established, it is still considered by many to be a benchmark for sustainable building design.

### **Quality Control**

Three independent systems are used to verify that the building is meeting energy conservation goals. Energy use will be monitored by the GSA Energy Center and compared with conventional federal buildings and the project's goals. To verify sustainability, the project is registered with the LEED program. The project team and the GSA's Office of Applied Science have allied with a number of academic researchers to verify workplace productivity strategies. Among them: Lawrence Berkeley National Laboratory, Carnegie Mellon University's Center for Building Performance and Diagnostics, and the University of California Berkeley, Center for the Built Environment.

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### THOM MAYNE

Thom Mayne founded Morphosis in 1972 as an interdisciplinary and collective practice involved in experimental design and rigorous research. As the firm steadily grows, currently with 40 architects and designers, Mr. Mayne remains committed to the practice of architecture as a collective enterprise.

Thom Mayne was born in Connecticut in 1944. He moved with his family to Los Angeles as a teenager, and proceeded to receive his Bachelor of Architecture degree from the University of Southern California in 1968. While there, he met five other students and educators with whom he would later join to create the Southern California Institute of Architecture, or SCI-Arc. In 1978 he received his Master of Architecture from Harvard University. Throughout his professional career, Mr. Mayne has remained highly involved in the academic and institutional facets of architecture. He has held teaching positions at Columbia University, Harvard University (Elliot Noyes Chair, 1998), Yale University (Eliel Saarinen Chair, 1991), the Berlage Institute in the Netherlands and the Bartlett School of Architecture in London, and he has taught as a visiting professor at many other universities around the world. His commitment to the education of young designers has not wavered over the past 30 years, and currently he holds a tenured faculty position at the UCLA School of Arts and Architecture. Each year Mr. Mayne participates in various international symposiums, lectures, and design juries at numerous institutions and universities.

His distinguished honors include Cooper-Hewitt, National Design Award (2006) Pritzker Prize Laureate (2005), Rome Prize Fellowship from the American Academy of Design in Rome (1987), the Alumni of the Year Award from USC (1992), Member Elect from the American Academy of Arts and Letters (1992), the 2000 American Institute of Architects / Los Angeles Gold Medal in Architecture, and the Chrysler Design Award of Excellence (2001).

Thom Mayne remains committed to developing a critical practice where creative output engages the contemporary discourse of the discipline through both architectural design and writing. With his firm, Mayne has consistently sought new and different design problems to solve and has resisted becoming specialized in any particular building "type". The solution to each individual design problem is always approached from a fresh beginning. As a result of this interest and commitment, Mr. Mayne's work ranges from designs for watches and teapots to designs for large-scale civic buildings such as Federal Courthouses to innovative urban design and planning schemes that reshape entire cities.

With Morphosis, Thom Mayne has been the recipient of 25 Progressive Architecture Awards, 60 AIA Awards and numerous other design recognitions. Under his direction, the firm has been the subject of various group and solo exhibitions throughout the world, including the largest ever exhibition of Morphosis' work, *Continuities of the Incomplete*, which was on view at the Centre Pompidou in Paris, France in 2006. Other notable exhibitions include those at the Contemporary Art Center in Cincinnati, Ohio, the Walker Arts Institute in Minneapolis, the Ministerio de Fomento in Madrid in 1998, and a major retrospective at the Netherlands Architectural Institute (NAI) in 1999. In addition to these solo exhibitions, Morphosis has been included in prestigious group exhibitions in Tokyo, London, Vienna, Buenos Aires, at the Los Angeles Museum of Contemporary Art, as part of the "End of the Century: 100 Years of Architecture" exhibition, and at the 2002, 2004 and 2006 Venice Architecture Biennales. Drawings, furniture, and models produced by Morphosis are included in the permanent collections of such institutions as the MOMA in New York, MOMA San Francisco, the MAK Vienna, The Israel Museum in Jerusalem, and the FRAC Center in France. Morphosis buildings and projects are published extensively in prominent architectural publications internationally. They have been the subject of 21 monographs, including four by Rizzoli, two by Korean Architect, two by El Croquis (Spain), one by G.A. Japan, and one by Phaidon, in 2003.

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**TIM CHRIST**  
Principal, Morphosis

Tim Christ joined Morphosis in 2000. He is a principal of the firm. Tim has over eleven years experience in the profession of architecture, experienced with all phases of design and construction services, with a special emphasis on sustainable technologies and integrated engineering. In addition to serving as project manager for the new San Francisco Federal Building, Mr. Christ is currently managing several other projects for the firm including the U.S. Port of Entry in Alexandria Bay, New York, a new corporate headquarters for the Giant Group in Shanghai, China, the National Jazz Center and Civic Park Master Plan in New Orleans, Louisiana and the Phare Tower in Paris, France. Other projects that he has managed at Morphosis include the Hypo Bank Headquarters Project (Udine, Italy), the competition phase of the Caltrans District 7 Headquarters, and the Penang Cultural Park Urban Planning and Design Competition (Malaysia).

Before joining Morphosis, Mr. Christ spent five years as associate and project manager for William Bruder, Architect-Ltd., working on a wide range of public and residential architecture projects. His prior professional experience includes eight years in the construction industry on a variety of projects in the US and abroad. Tim has lectured and served as a guest critic at different institutions while with Morphosis. Some recent lectures include 'Field Notes,' CalPoly Pomona, May, 2006; 'The Cutting Edge: San Francisco Federal Building,' International Building Performance Simulation Association Conference, Boulder, CO, August, 2004; 'Numbers Count, A Symposium,' School of Architecture, Yale University, New Haven, CT, April, 2004; and 'mOrphosis + Sustainability', Construction Specifications Institute Annual Meeting, Long Beach, CA, January, 2003. Mr. Christ received his Master of Architecture from Yale University in 1995.

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### MORPHOSIS SYNOPSIS

Founded in 1972, Morphosis is an interdisciplinary practice involved in rigorous design and research that yields innovative, iconic buildings and urban environments. Today, as the scale and sophistication of the California-based firm's projects continue to grow, Morphosis consists of a group of more than 40 professionals, who remain committed to the practice of architecture as a collective and interdisciplinary enterprise. Morphosis is a dynamic and evolving practice that responds to the shifting social, cultural, political, and technological conditions of modern life. With projects worldwide, the firm's work ranges in scale from residential, institutional, and civic buildings to large urban planning projects. The firm also invests significant creative energy in drawing and in the design of functional objects and furniture. Thom Mayne was named the 2005 Pritzker Architecture Prize Laureate, the profession's highest honor, and Morphosis has been the subject of extensive publications and exhibitions throughout the world.

### FIRM BACKGROUND

Morphosis was founded in 1972 in Los Angeles as an interdisciplinary and collective practice involved in experimental design and rigorous research. Today, the firm consists of a group of more than 40 professionals, who remain committed to the practice of architecture as a collaborative enterprise.

Named after the Greek term, *morphosis*, meaning to form or be in formation, Morphosis is a dynamic and evolving practice that responds to the shifting and advancing social, cultural, political and technological conditions of modern life. A critical practice where creative output engages contemporary society and culture through architectural design and education, Morphosis is a process driven firm that seeks new and different design challenges and has resisted becoming specialized in any particular building type. With projects worldwide, the firm's work ranges in scale from residential, institutional, and civic buildings to large urban planning projects. The firm also invests significant creative energy in drawing and in the design of functional objects and furniture.

With founder Thom Mayne serving as design principal, Morphosis typically generates its ideas through brain-storming sessions, in which designers question all prior assumptions about a project and intensively test and refine different avenues toward a solution. Collaboration with the client is an essential part of this process. Morphosis works closely with its clients to help them define the ethical and functional goals of the project, then translates those goals into a design that satisfies the unique requirements and aesthetic opportunities of the program, site and context. The ultimate goal is to produce an architecture that surprises and inspires—a critical architecture that contributes to the conversation about how we live today.

Over the past 30 years, Morphosis has received 25 Progressive Architecture awards, 60 American Institute of Architects (AIA) awards and numerous other honors. Thom Mayne was named the 2005 Pritzker Architecture Prize Laureate, the profession's highest honor, and in 2006, received the Cooper Hewitt National Design Award. Morphosis was also selected as the 2005 Firm of the Year by the AIA California Council. Morphosis has been the subject of group and solo exhibitions around the world, including the largest ever exhibition of Morphosis' work, *Continuities of the Incomplete*, which was on view at the Centre Pompidou in Paris, France in 2006. Drawings, furniture and models produced by Morphosis are in the permanent collections of institutions including MoMA, New York; SF MoMA, San Francisco; the MAK, Vienna; The Israel Museum, Jerusalem; and FRAC Centre, France. Morphosis buildings and projects are published extensively in prominent architectural publications internationally. The studio has been the subject of 18 monographs, including four published by Rizzoli and a 2003 monograph from Phaidon.