GENERAL BUILDING INFORMATION:
Program: Office
Location: San Francisco, California
Architect: Morphosis
Site Area: 2.1 acres/0.8 hectares
Building Area: 605,000 sq ft (56,205 sq m)
Number of Storeys: 18 storey office tower
Building Height: 234 ft (71.3 m)

CONTEXT
The San Francisco Federal Building is situated on a site in San Francisco, California’s South of Market (SoMa) District. It is situated on a block that is turned 45 degrees off the north-south axis which gives it a unique and challenging condition, environmentally. San Francisco is located in a highly active seismic zone which adds additional challenges and possibilities to the project.

FORM
The Federal Building is comprised of three major forms on site. At the northwest edge of the site is an eighteen-storey tower. To meet the scale of the public, a four-storey annex extends along the southwest. The remainder of the site contains an open plaza with a free standing pavilion at the east corner that provides interaction with the street level activities (morphmedia).

The form of the building has an interesting relationship to the surrounding context of its location. Immediately northeast of the site is the Beaux-Arts style Court of Appeals. To the southeast and along Mission Street, this style of architecture can be seen again to a lesser scale. Rudolph states that “[a] truly successful building must be related to its neighbors in terms of scale, proportions and the space created between the buildings” (213). Morphosis develops this relationship
in the form of juxtaposition where the height surpasses that of the surrounding neighborhood yet meets the street and pedestrians at an appropriate scale with the four-storey annex along the southwest edge of the site, the detached cafeteria at the east corner and with the plaza between all building compositions. The stainless steel skin provides this contradiction to the surrounding formal and repetitive forms. The skin of the Federal Building also contrasts the logical layout of the structural form of the tower it is wrapping adding greater interest to its form (figure A.2).

The tower is visible from many vantage points around the city as it penetrates San Francisco’s skyline. There are two faces to the Federal Building’s tower: to the north, the tower is inconspicuous revealing its structural form while being articulating its façade with the vertical glazing screens to ward off summer solar gain; to the south, a stainless steel veil drapes itself poetically over the tower face and the plaza below. The site revealed a dividing line in the city and the expression couldn’t reinforce this any less. To the north, the language of the north façade speaks to the skyline of the bordering district as it has a typical geometric appearance. Its placement is like a border marking for the area stating a limit to where towering skylines are not to proceed beyond. (figure A.3) The south contrasts the north in form by speaking largely to the industrial areas near San Francisco Bay. The elevation is more rugged and less formal as compared to its north face. This play on two differing cultures within the city on the face of one tower displays a sensitivity to the social environment in which it has been placed.
The primary focus of the design was performance based which would have an impact on the urban scale as well as the internal re-workings of the traditional office building. As a mandate, the US government required this building to be a “model office building” (Lerum, 215) which led the design team to develop the project around three major goals: sustainability; redefining office culture to increase heath, efficiency and creativity; and an “urban landmark that engages with the community” (morphmedia).

Sustainability and responsible energy management were the major drivers in many of the design decisions for the Federal Building. Not only did it inform decisions on systems but equally did it influence the form of the building. Rudolph’s third determinant (213) is reflected as great consideration was taken in the region’s environmental surroundings and influences (i.e. weather). It is understood that a thinner floor plate allows for efficient transmission of natural airflows through the entirety of the space (figure A.2). As a floor plate grows in depth, the efficiency of flows is greatly reduced (figure A.3). Not only is airflow affected by the shape of the floor plate, but this shape also effects light permeability as well. With the Federal Building’s floor to ceiling glazing, sun light is able to travel through the open office layout from one end to the other (figure A.2). The deeper the floor plate, the less light is able to travel through the entire area (figure A.3).

“The structural moves in the building are expressed in a very honest way and a straightforward way... [w]e are interested in a kind of realness”
- Morphosis –(Lerum, 216)
BODY:
As a major element, the stainless steel screen is of great interest to examine. Its organization is akin to the San Andreas fault as it could have simply been draped as a flat, inconspicuous form. Instead there appears to be a similarity in its layout to this formation in nature (figure b.1 & B.2). The idea of transparency in a time of heightened terrorism is contrasting to what one would be instinctual. This contradiction was an attempt to provide a sense of openness of the government to the city and its patrons as opposed to a secretive closed off knee-jerk reaction to security risks.
As Thom Mayne describes it, the screen acts like clothing providing protection from the elements (Blum). The 50% porous stainless steel screen acts to protect the floor to ceiling glazed offices from excessive heat gain from its southern exposure. The screen is computer controlled that opens and closes based on climate conditions (figure B.7 & B.8). Similar to skin, the building is able to regulate itself by “perspiring” if needed by opening pockets in the screen (figure B.5). The screens are opened to allow airflow from the opposite end of the floor plate to exit without hindrance. The building can also “insulate” itself by closing the screen and maintaining an air pocket between it and the building face similar to hair rising over skin to do the same (figure B.6).
When discussing terrorism and US government, one cannot help but conjure up imagery commonly associated with said subjects. Veiling is another term for screening that can be used. The idea of a woman veiled behind a burka (figure B.9) can be projected onto the Federal Building portraying an assertive control over the building similar to the idea of a burka’s perceived control and power over a woman. As transparent as the screen would seem, there is still an element of oppression conveyed. The contradictions in forms also express themselves in a subsurface layer.

The veil’s primary role is to restrict the viewer’s ability to observe the true subject beneath this layer. Though it does this job successfully, the stainless steel screen hides a level of power being expressed. Although you cannot see the figure behind the veil, the individual, however, can observe you. Foucault states, “The panoptica schema makes any apparatus of power more intense” (Nealon, 34). The idea of the panopticon, as theorized by Jeremy Bentham, was the idea of a watchman able to observe a subject (a prison inmate in Bentham’s case) without the subject being able to perceive it. In this case, government workers are able to survey the landscape unbeknownst to those outside hence from behind the veil. The form of the light box/sky cafe penetrating the screen is reminiscent of an eye; it is always watching and observing the city proper (figure B.10).

“I have opportunities to make certain kinds of contributions because of the magnitude of the work, of the nature of the program, or its position in the city. The work has become explicitly political.”
- Thom Mayne -(Fletcher, 66)
**TECHNIQUE:**
The San Francisco Federal Building handles natural weather patterns to achieve independence from energy-reliant methods typical of many government buildings. The building utilizes its orientation to the environment in a way that takes advantage of natural occurring systems that aid in the heating and cooling of the interior spaces. The Federal Building is the first US federal building to be constructed without a mechanical air conditioning system (Lerum). It relies entirely on natural wind and cross air flows across its shallow floor plate as it is oriented to predominant winds from the northwest.

The different permutations of its current form on the site yield conditions that make its decided orientation the most ideal. Full utilization of the site is critical for any building. By realigning to the north-south axis off the existing city grid, the site becomes disjointed and disconnected. A full 180 degree reorientation refocuses the site to a less active street thus completely closing the site off from the major pedestrian traffic. Each of the 90 degree rotations provide openness in the site, but do not reinforce the idea of it being a border marker between the low-rise and high-rise districts. This orientation does not allow for natural ventilation capturing predominant winds critical to the energy saving schemes sought by the government and architect.

*FIGURE C.1 - REORIENTATION STUDIES*
As the building and site are oriented 45 degrees to north, the northwest face experiences low solar angles during summer months which leads to extreme heat gain (Lerum). To mitigate this issue, a “Brise-Soleil System of sun shading employs vertical glass panels” (Morphosis, 367) that is installed on this elevation for the entire vertical face of the building to act as sun shades. The glass runs vertically rather than horizontally as the sun is at a low angle in the later afternoon.

FIGURE C.2 - BRISE-SOLEIL SHADING STUDIES
The southeast face of the building, however, is hit directly with the full heat of the majority of the day. The main body of the building is floor to ceiling glass which would allow too much heat gain with direct exposure. Morphosis utilizes a 58% permeable (Lerum) stainless steel screen offset from this building face. The permeability of the screen does not “[compromise] the view or the amount of daylight entering the space” (Lerum, 226) without compromising thermal comfort within the interior spaces. Vision through a perforated screen depends on the variation of the opening sizes (figure). In comparing different opening sizes, there is a fine balance between three key determining factors: ventilation, solar gain, maximum views. With the smallest opening, solar gain is mitigated but ventilation and views are compromised. As openings get larger, all the factors begin to meet in mutual favor to the other. Larger openings beyond the 58% would have allowed too much solar gain and “any percentage above 60 or 62 will cause the material to begin to deform during the process of punching the sheets so that they become very unworkable to fabricate” (Lerum 226).
“...without an active sidewalk life, without the frequent, serendipitous interactions of many people, 'there is no public acquaintanceship, no foundation of public trust, no cross connections with the necessary people – and no practice or ease in applying the most ordinary techniques of public life at lowly levels.'”
- Malcolm Gladwell on Jane Jacobs’ *The Death and Life of Great American Cities* - (Morphmedia)

**SPACE:**
The internal logic of the Federal Building is primarily hinged upon improved co-worker relationships and improved health of its users. For the former point, the idea of improving social conditions by means of architecture is revealed in Morphosis’ organizing of the vertical access to each level. This employs what Morphosis describes as “a Jacobsian ‘sidewalk life’ of cross sectional interactions” (Morphmedia). Malcolm Gladwell also notes that “…one study after another has demonstrated [that] the best ideas in any workplace arise out of casual contact among different groups within the same company” (Morphmedia). The elevator accesses every other level which is called Skip-Stop Circulation. By stopping only on every other level, the user is required to access the floor above or below by means of another circulation method such as a set of single storey stairs. With the intentional programming of the space of different departments within these 'mixing-zones', there becomes an increased chance of these casual contacts as Gladwell suggests.
The latter of the above identifies a growing concern in North America that deals primarily with health of workers. The increase in sedentary work habits and conveniences of technology has helped contribute to the detrimental health issues being faced by the present day workforce. The idea of the Skip-Stop Circulation was to change the social norm of convenience and ease to that of increased physical activity but not beyond what is capable of anyone’s abilities. – a single storey climb or descent. In Violence of Architecture, Bernard Tschumi notes that architectural spaces also violate bodies within it through “the symbolic or physical violence of buildings on users” (Tschumi, 44). By creating this condition of forced increase in physical movement, there is a possibility of worker dissatisfaction. However, the physical and social benefits were seen to outweigh any risk of this occurring.

FIGURE D.2 - SKIP-STOP CIRCULATION
There are two different sensations produced by the materiality and scale of the exterior and interior of the building. Beginning with the exterior, much has been discussed of its materiality in the previous Form and Body sections. As previously stated, the exterior has a duality to its formulation of presence to the north and south. But in discussing the sensations of these facades, the south induces a curiosity. As government security - or secrecy – becomes more of a fascination for people to look beyond and into, so the stainless steel scrim produces this intrigue. As discussed in the Body portion, the body beyond the burka is something of a mystery. Its general form is understood but beyond is something left to the imagination. The internal workings and space are not for the general public to be intimate with but only to those privileged to see it in its natural form.
The internal spaces offer a unique sensory experience that differs in locations through the more public areas in comparison to the more private locations of the agency work areas. The major public areas are composed such that a patron is not to linger or get comfortable within the space. As it is a government building, it is meant purely to provide only the service one came for and nothing further; it is not a social gathering area where prolonged periods of gathering are supported. This is suggested in the cold material palette of the space. Durability was a primary driver for selection of interior finishes. The fibre cement board offers a varying texture to the concrete throughout yet maintains the same quality of stark, clean and authoritative efficiency as a government body is seen. The scale of the panel sizes also expresses an odd discomfort as the larger the panels, the less human they feel.
The scale of the interior volumes also reinforces this. As lower ceilings and volumes typically express an intimacy and comfort of a space, the San Francisco Federal Building’s interior conveys the opposite. As the scale of the space increases, so does the discomfort in being in this space; as the ceiling rises, agitation increases and moves you along your way. As Tschumi describes it, this is a space clearly acting upon its user in an intense way.

However, when a user reaches the work areas, the comfort level of being in that space increases. Through the use of natural light and lower ceilings, the space allows the user to operate without feeling discomfort as experienced in the larger volumes.
REFERENCES:

IMAGES:
Figure A.1: Composite Image. google maps (background image), diagram (self).
Figure A.5: diagram (self).
Figure B.4: <http://www.sanandreasfault.org>.Web.
Figure B.5: <http://pharmaxchange.info>.Web.
Figure B.9: <http://awwproject.org>.Web.
Figure C.1: diagram (self).
Figure C.2: diagram (self).


Figure D.3: diagram (self).