

Recovery Act Project Plan

Johnson Space Center

This document represents the initial plan for the JSC Recovery Project. It details the Center’s plan for the work being funded through the Cross Agency Support portion of the funding that NASA received from the American Recovery and Reinvestment Act.

The objective of the JSC Recovery Project is to repair facilities that were damaged during Hurricane Ike in September 2008. This plan addresses the work necessary to repair the damage caused by Ike, using the \$50M in funding from the American Recovery and Reinvestment Act. Through use of effective management oversight and competitive procurements, NASA plans to accomplish most or all of the identified repairs.

All of the repair projects in this JSC Recovery Project Plan are crucial to the Agency’s missions. These missions include but are not limited to flyout of the Space Shuttle Program, completion of assembly of the International Space Station, operation and utilization of the ISS, implementation of the Constellation Program including the Orion Project and support for Commercial Crew & Cargo Program.

The work packages identified will be performed utilizing competition and authorized small business contracting programs to the maximum extent practicable. All work will be accomplished through contracts. Detail of the construction work required is provided in Appendix 1. The schedule for these procurements is as follows:

Roof Packages - Major Milestones:	Estimated
Industry Day	3/2009
Solicitation Issued	3/2009
Offers Due	4/2009
Contract Awarded	5/2009
Construction Start	7/2009
Construction Complete	5/2010

Other Work Packages - Major Milestones:	Estimated
Industry Day	3/2009
Solicitation Issued	3/2009
Offers Due	4/2009
Contract Awarded	5/2009
Construction Start	6/2009
Construction Complete	5/2010-9/2010

All roof systems being replaced will be upgraded from the current design of 90mph wind uplift to Factory Mutual Global (FMG) Wind Uplift Classification of 150 mph. The loggia ledge systems will be replaced with FMG 135 Wind Uplift Classification. This

will result in improved performance during high winds, tropical storms and hurricanes leading to long term savings due to reduced repair costs.

The Center does not expect there to be any increase in annual operating costs due to the repairs. In fact, the upgraded roof systems are expected to lower these costs. It is estimated that annual energy costs for these buildings will decrease 30 to 40 percent with the new roof systems. This estimate is based upon previous energy models of similar roof replacements for on-site facilities.

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Appendix 1 - Function of Buildings and Structures Designated for Repairs.

Loggia Ledge Replacement: The site facilities were constructed with loggia ledges adjacent to windows and some roofs. The purpose of the ledges was to extend the floor level of the facility beyond the window wall to provide shading to the facility windows. The ledge coatings are a component of the building waterproofing envelope. When the coatings are deteriorated and leak, they impact the facility interior by allowing water on the floor, and into the overhead area that contains asbestos. The ledge also provides access to the site window walls.

Roof Replacement: The site roofs, which were already in a deteriorated state, now require replacement to correct issues caused by the hurricane that include damage to flashing, scouring, wet insulation, and other issues that cannot be repaired through normal maintenance.

Other: Other repair work is required as described.

Building Number	Description	Building Use/Remarks
46	Roof	Bldg. 46 Central Computer Facility houses servers that are critical to site operations and email. The existing mechanically fastened hypalon roof is leaking at drains and is compromised.
45	Penthouse & Flashing	The south wing of Building 45 Project Engineering Building is a seven story structure with a penthouse that contains approximately 84,832 square feet and houses 483 people. The occupants include safety and quality assurance, facility management and operations, project planning and integration, information resources, and facilities contract personnel. It also houses the Engineering Drawing Control Center. The penthouse contains elevator equipment rooms and mechanical equipment.
25	Roof	Building 25 is a small facility which houses the back up Emergency Operations Center and is used to support Fire Protection Services - fire alarms, sprinklers, and fire suppression.
4N	Roof	Bldg. 4N Flight Operations Facility houses International Space Station Program Office, flight crew activities and training personnel in an integrated office-laboratory facility.
7admin	Roof	Building 7 Crew Systems Laboratory houses chambers that are used for design, test and analysis of life support systems, environmental control systems, and active thermal control systems for spacecraft and extravehicular (EVA) activity. It is also used for design and development of crew equipment for EVA and other hazardous environments. The building facilities provide for flight crew EVA training and checkout testing of EVA suits and life support systems. This building also provides manned and unmanned test capability in both vacuum and thermal vacuum environments. The building contains unique human-rated vacuum chamber test facilities including the 8ft environmental test article (ETA) chamber and the 20ft systems integrated research chamber. Test support systems include real-time data acquisition/display, television, communications, control rooms, and support technician work areas. Additional building facilities are used for regenerative life support system research and development testing. In-house capability exists for soft goods fabrication, and non-metallic materials development.

37	Roof	Building 37 Life Sciences Laboratory is used as a multipurpose laboratory for ground-based and in-flight medical operations support and biomedical research activities relative to health, safety, and performance of flight crews during all phases of manned space flight. The facility personnel work to define life sciences and life-support requirements for advance space exploration initiatives.	
32	Roof	Building 32 Space Environment Simulation Laboratory houses the Thermal-Vacuum Test Complex that houses the two largest chambers at JSC. The facility provides full scale testing of large systems and human testing/training in a high fidelity simulated space environment. In addition to the chambers, a high bay area supports test article buildup and preparation for installation into the chambers. The high bay has two overhead cranes each with a main hook capacity of 45,000 Kg (100,000 lbs) and an 18,000 Kg (40,000 lbs) auxiliary hook. To support test articles the facility has numerous thermal carts capable of providing precise thermal control to temperatures as low as 144 K. Cooling and heating via various heat transfer media are provided by the carts with a combined capacity of 11,700 KW (400 Kbtu) cooling and 7,900 KW (270 Kbtu) heating. Chamber A is currently being prepared to support James Webb Space Telescope Testing.	
32	Loggia ledge	B32 administration wing houses personnel who support chamber operations. See above.	
11 north	Roof	Building 11 Central Cafeteria supplies food service and houses the JSC Exchange sales facility. The north wing houses equipment.	
13	Loggia ledge	Building 13 Structures and Mechanics Laboratory is used for detailed investigation of materials, spacecraft structural components, and complete structural assemblies under environmental conditions.	
15	Loggia ledge	Building 15 Experiments and Systems Laboratory is used to perform integrated testing and evaluation of spacecraft and Earth-based Laboratory communication and data acquisition equipment.	
8	Loggia ledge	Building 8 houses photographic services and laboratory and medical operations including the medical dispensary and site clinic.	
44	Loggia ledge (roof is in phase 1)	Building 44 Communications and Tracking Development Laboratory provides a controlled, calibrated radio-frequency environment for functional performance evaluations of spacecraft communications equipment. Houses high fidelity ground station, relay satellite, and spacecraft systems interconnected for simulation for space-operating conditions.	
9 south	Roof	Bldg. 9 south Systems Integration Facility houses technical and engineering personnel; provides for construction of wood, plastic, and metal spacecraft hardware items; houses Space Station and Space Shuttle mockups for training and engineering evaluations.	
261	Roof	Bldg. 261 Planetary and Earth Sciences Annex is used for evaluating the effects of radiation and research for and experimental petrology.	
222	Roof	Bldg. 222 Atmospheric Reentry Materials and Structures Evaluation Facility houses the Arcjet and is used for evaluating materials and structural components under simulated hyperthermal conditions which are encountered by spacecraft's structures and materials during entry into the Earth's atmosphere and other planetary atmospheres.	

3	Roof	Building 3 Central Cafeteria supplies food service and houses the JSC Exchange sales facility.
14	Roof and Loggia Ledge	Bldg. 14 Antenna and Tracking Development Laboratory facility performs Development and testing of antenna pattern measurements and communication in anechoic environment. The facility is also houses the Electromagnetic Interference (EMI) Electromagnetic Compatibility (EMC) Laboratories that comprise two shielded measurement chambers used to perform Electromagnetic Interference Testing and Analysis of ISS and Shuttle equipment.
221	Roof	B221 is the site electrical substation. The roofs are small control buildings which contain the switches and other equipment that are essential to site operations.
31	Roof	Bldg. 31 Planetary and Earth Sciences Laboratory is used to house personnel and equipment necessary for the development of the in-flight engineering and scientific experiments to be conducted from Space. The facility houses the Genesis Sample Storage and Processing Facility, and the Lunar Sample Lab Facility,
10	Roof	Bldg. 10 Technical Services Shop houses an extensive fabrication shop for construction of wood, plastic, and metal spacecraft prototypes up to full scale in size.
17	Roof	Building 17 houses the Constellation Program personnel. The facility also contains the main center VITS room and houses the food systems engineering facility. It also is one of the site essential telephone equipment hubs.
29	Roof	Building 29 is currently being modified to house the CEV Avionics Integration Laboratory.
17	Loggia ledge	Building 17 houses the Constellation Program personnel. The facility also contains the main center VITS room and houses the food systems engineering facility. It also is one of the site essential telephone equipment hubs.
36 admin	Roof and Loggia Ledge	Bldg. 36 Bioengineering and Test Support Facility is used to house the staff, offices, and laboratories of the Life Science Project Division for development, test, training, and operational support of life sciences payloads.
16a	Loggia ledge	Bldg. 16 Avionics Systems Laboratory is used to support advanced spacecraft design; dynamic stability development and propulsion and energy systems design; and for work in areas of control, guidance, and navigation systems development.
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30 admin	Roof and Loggia Ledge	Building 30 Mission Control Center Administration Wing houses the personnel, equipment, and facilities necessary to exercise operational support for manned space flight programs. The mission operations wing is the hub for communications and electronic controls employed to maintain contact with spacecraft and crew during actual flight missions.
30 lobby	Roof	Building 30 Mission Control Center Lobby Wing houses the main Site Emergency Operations Center. The facility also contains the

			personnel, equipment, and facilities necessary to exercise operational support for manned space flight programs. The mission operations wing is the hub for communications and electronic controls employed to maintain contact with spacecraft and crew during actual flight missions.
Street & Parking Lot Lights	Repair lights.		Street and parking lot lights are used to illuminate sidewalks and parking lots for safe pedestrian and vehicle traffic.
Carpet B2 South	Carpet		Building 2 Public Affairs Building houses PAO personnel and press conference sound rooms. And the site auditorium
Barge Dock	Safe barge dock.		The barge dock is stand alone property next to public property on near by Clear Lake. JSC has retained ownership of the land in the event it is needed to transport large articles to the center by water. The dock is fenced off and this project simple restores the area and safeguards the public from the area. Currently, the security fence is damaged allowing public access to the area. The exposed corroded steel piling is a safety hazard.
PEAF Panels	Panel caulking and waterproofing		Caulking and sealing of precast exposed aggregate facing panels will waterproof the building envelope. The majority of these facilities are located in the core central campus. Leaks through the walls, particularly the high bay, can damage building contents.
PEAF Panel	Panel caulking and waterproofing		See above.
Window Wall, B1	Repair leaking window wall and gaskets.		Building 1 Project Management Building houses center project management personnel, including the Center Director.
Hanger 280	Replace damaged hanger.		Hanger 280 is an aircraft wash rack and maintenance facility for all aircraft used to support human space flight readiness training. In addition, this facility supports maintenance of larger aircraft and storage of ground support equipment when other locations are unavailable. Aircraft are serviced on a regular basis for corrosion control, general airframe inspection, and other required general maintenance and safety inspections. Airframes serviced includes T-38, general gulf stream and other larger frame aircraft, WB-57 high altitude test aircraft, and any test aircraft or other transient aircraft as required.