

From: Glenn, Malcolm C.
Sent: Friday, December 04, 2015 7:02 AM
Subject: 12/04/15 Neat Information Update

Everyone,

Another Neat Information Update (NIU) is attached for you. I hope you enjoy!. Please excuse typos/verbiage errors. We proofread but not exhaustively. I/we are still working to make a publically accessible NIU web site. There is a process we are going through to make this happen. I see a path forward. I will let you know what is going on. In the meantime, the NIU SharePoint site is at <https://sp.ksc.nasa.gov/sa/sa-b/malcolm/default.aspx>, accessible within the NASA domain and I still update it. Since the last NIU, I posted some video from the Atlas V launch on October 2, 2015, at Cape Canaveral Air Force Station, under "Neat Videos", titled "100215 Atlas V Launch Video". Turn the volume up on this one to experience some of the real affect, which is near to impossible to duplicate the real affect in person!!!! Thank you Kate Cryderman for this video! I also loaded a neat video (visualization), of the Space Launch System (SLS) swing arms in action, under "Neat Links". This video was shown at the SLS Ground Systems and Development (GSDO) Critical Design Review (CDR) Kickoff. Thank you Kate for this too! And I posted a neat article about lightning, under "Neat Documents", from the 1976 Space Congress, titled "Lightning – Apollo to Shuttle".

Of note, as of October 6, 2015, Orbiter Processing Facility (OPF)-3 is officially the Commercial Crew and Cargo Processing Facility (C3PF)!

There are some new books out, with really neat information, as follows:

- "Go, Flight!", by Rick Houston and Milt Heflin. This book includes some great insight, behind the scenes at Mission Control, if you may!
- "Countdown to a Moon Launch: Preparing Apollo for Its Historic Journey" and "Rocket Ranch: The Nuts and Bolts of the Apollo Moon Program at Kennedy Space Center" by Jonathan Ward. These two books provide really neat in-depth looks, to levels I have never seen before, of work performed at the Kennedy Space Center during the Apollo Program!
- "Moonshots & Snapshots of PROJECT APOLLO: A Rare Photographic History" by John Bisney and J.L. Pickering. This book chronicles the Apollo missions, Skylab and the Apollo-Soyuz Test Project, with great photos, accompanying text and photo captions!

If you have not seen, Blue Origin just recently launched the New Shepard rocket, with the launch stage returning to and landing at the launch site. The crew capsule was also recovered via parachute. There is a video in the following article which includes some very neat footage; <http://arstechnica.com/science/2015/11/jeff-bezos-and-elon-musk-spar-over-gravity-of-blue-origin-rocket-landing/>. The landing sequence includes some neat decel and translation at the end!

Please contact me or send me an email if you have questions, suggestions, additions/deletions to the distribution, articles/information for the NIU (as I am a seeker of same) or whatever you might have regarding the NIU.

Thank you Kate Cryderman helping me prepare this NIU! All links were working as of "press time".

Thank you very much!
An honor, a privilege and a very great pleasure!
Malcolm

Go Atlas!/Go Cygnus!



Malcolm's Neat Information Updates!!!

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'Malcolm's NIU' SharePoint site is at
<https://sp.ksc.nasa.gov/sa/sa-b/malcolm/default.aspx>,
accessible within the NASA domain. We are working to
hopefully make a publically accessible NIU web site. I
will let you know what is going on.

Please let me know if you have ideas to improve the NIU
SharePoint site and if you find a link or something not
working, please let me know that too. I uploaded the
latest NIU, a video from the October 2, 2015, Atlas V
launch, an SLS swing arms in action video/visualization,
and a neat article about lightning, to the SharePoint site
since the last NIU.

Thank you very much for sending me responses/inputs/
material for the NIU. I apologize if I do not properly
credit you! If that is the case, please let me know! I still
have articles to send out and plan to do so. Again, thank
you very much!

Thank you very much!

An honor, a privilege and a very great pleasure!

Malcolm



Inside Today's NIU...

- Updates From the Last NIU
- Gemini 5 Photo Then and Now
- Central Instrumentation Facility (CIF) Then and Now
- LCC Mural Then and Now
- Armando's LCC Found Photo
- Minutemen Then and Now
- Lunar Rover Garage
- Swamp Works Sculpture
- A Photo From the John Tribe Collection
- Starfighter Update
- "To the MOON" and Remaining VAB Vintage Door Logos/Signs
- VAB Phantom Door
- Neat Photo of OPF1 and C3PF

NIU Contact Information



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NIU Master



Kate Cryderman (Brewer)
NIU SharePoint Master



Updates From the Last NIU.

In the last NIU, I included a photo and mentioned an update on the Landing Complex 1 sign at Cape Canaveral Air Force Station (CCAFS). The words “Complex 13” were added to the sign, noting the pad heritage. Well, the sign was changed back to the way it was when first installed earlier this year, removing the “Complex 13” words, by painting over them. See the photo. And for the latest, the sign, a new one, now reads “Landing Zone 1”. I do not know what is going on with the name changes. All the photos from start to finish, including the version before conversion to a landing complex/zone, are provided below.



For another update, in the last NIU I included a photo of LC34 showing a vintage photo and recent photo of the abandoned launch mount. In the recent photo, there were some barricades around the launch mount. Well, the launch mount barricades are still in place and some “DANGER” signage has now been added; see the related photo. In addition, to discourage vehicle traffic up close to the launch mount, barricades have also been added to the three vehicle access points; see the photo for the approach from the south as an example.



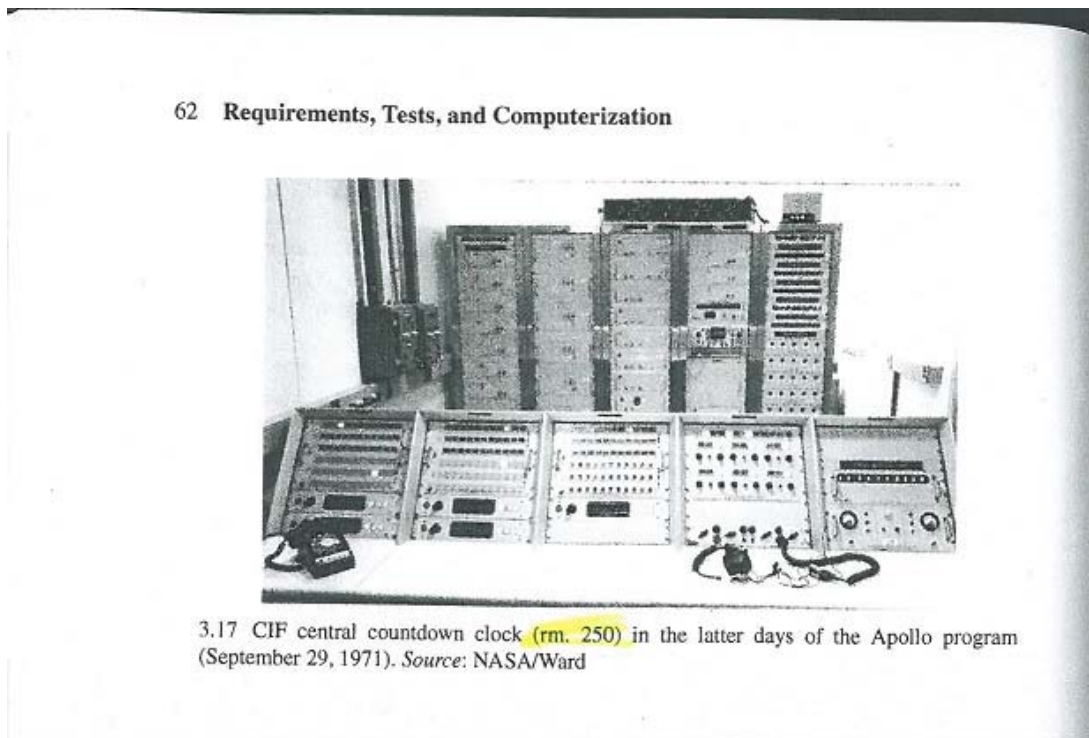
Gemini 5 Photo Then and Now.

Taking a lead from J. L. Pickering's and John Bisney's book "Spaceshots & Snapshots of Projects MERCURY and GEMINI", there is a photo on page 110 with the caption "Gemini V is moved from Spacecraft Checkout Facility at Cape Canaveral to LC-19 on June 18, 1965." J.L. sent me an electronic version of the photo; see below (thanks J.L.!). I wondered what the facility is in the background. And so, I have determined the facility is the Engineering & Laboratory (E&L) Building at Cape Canaveral Air Force Station. The building is still in use today by the 45th Space Wing; see current photo. You can see an exhaust outlet on the roof of the building in the same location in the Gemini V and current photos. Pursuing the subject further, Elaine Liston helped me by providing some information from the Technical Facilities Resume about the E&L building in the day (before the buildings in the KSC Industrial Area were built and occupied) as follows (thank you Elaine!): "This facility is utilized by scientific, technical, and engineering personnel of NASA and associated support contractor personnel in planning and directing projects and tasks assigned to NASA for launching space vehicles and completing scheduled missions." And so, another question we asked ourselves (Armando Oliu, Pete Chitko and me) about the same time as I saw the photo in J.L.'s book was: where would Kurt Debus, the first KSC Director, have worked before occupying his office in the current KSC Headquarters building? And so, Elaine came up with a great photo of Kurt, dated November 30, 1964, see below, with the following caption: "DR. DEBUS BIRTHDAY PARTY AT CONFERENCE ROOM, E&L BUILDING." To further the story a bit, we (Pete, me and Emily Forrester) made our way over to and inside the E&L Building, using the Christie White "Let's Make Friends" approach, to see if there was anything vintage of days gone by, when NASA personnel worked in the building. We did not find anything vintage in the building, from its use in the early 1960s. The building has been refurbished and repurposed.



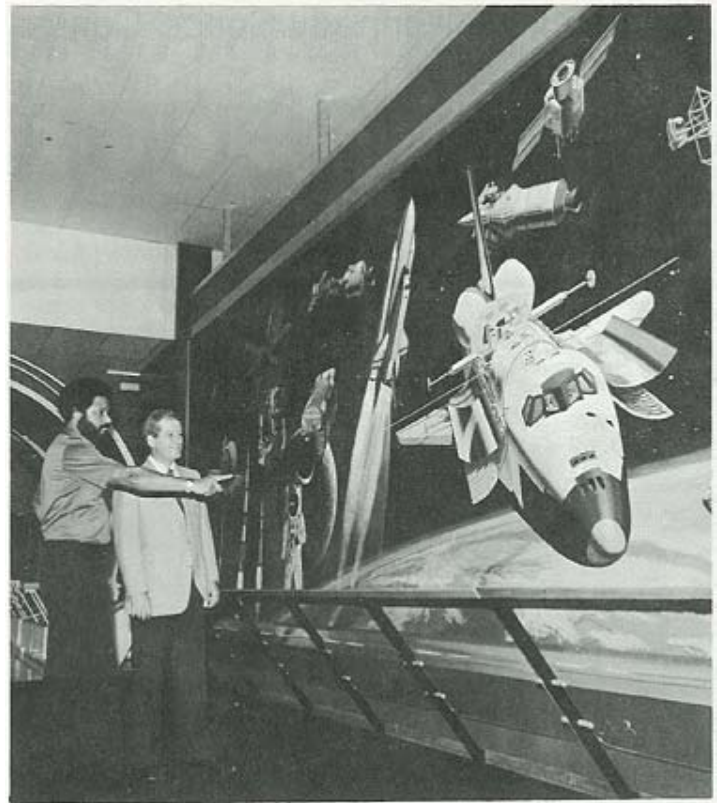
Central Instrumentation Facility (CIF) Then and Now.

Continuing the “Then and Now” theme, there is a photo in Jonathan Ward’s book “Countdown to a Moon Launch”, on page 62, of a room in the Central Instrumentation Facility (CIF) in the KSC Industrial Area, with the caption “CIF central countdown clock (rm. 250) in the latter days of the Apollo program (September 29, 1971)...” Pages 59 through 61 of the book provide a good description of the facility. The CIF is slated for demolition and is now largely unoccupied so I stopped by to see if I could find room 250 and sure enough the room is still there and some of the vintage equipment is still there; see the current photo. There are photos of other rooms in the CIF in Jonathan’s book from Apollo days but I was unable to find anything else in its vintage Apollo state with associated equipment.



LCC Mural Then and Now.

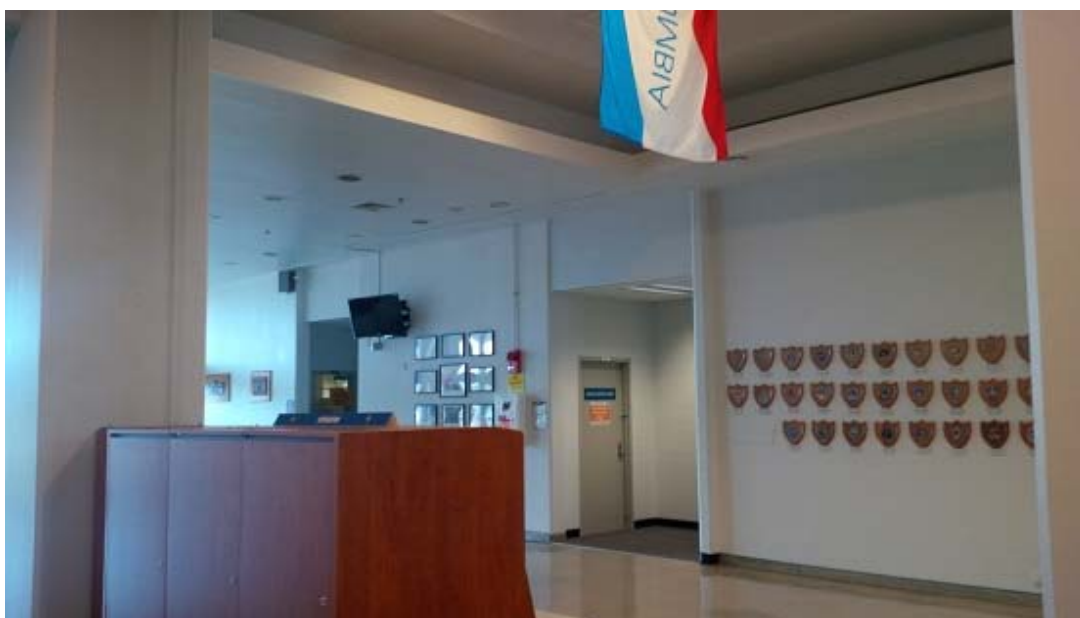
This story has its origins some three years ago when KSC Visitor Complex tours of the Launch Control Center (LCC) were starting up. Stephen Smith with the KSC Visitor Complex contacted me and asked if I knew any heritage about the mural in the LCC Lobby; answer no. See current photo. However, I was able to find an article in the December 5, 1980, issue of the SPACEPORT NEWS about the mural and sent it to Stephen; see the 1980 photo and the caption. In the meantime, Stephen tracked down Ted Brown, the artist, and talked to him (thanks Stephen!). At the time, circa 1980, Ted was an artist for Rockwell. Ted also painted a larger version of the LCC mural on a wall in the Design Engineering Implementation Room at the Rockwell plant in Downey, California, a building now demolished. That mural was something like 70 feet long by 30 feet high and the LCC mural is roughly 30 feet by 12 feet. So, the KSC mural currently displayed in the LCC Lobby was first displayed at the KSC Visitor Complex, circa 1980, and at some point it was moved to the LCC Lobby, time unknown.



ROCKWELL INTERNATIONAL Artist Ted Brown, left, chats with Raymond Clark, Associate Director of STS Development, after putting the finishing touches on the new wall mural displayed in the Visitors Information Center. Brown was the lead artist on the project, which depicts the evolution of U.S. manned spaceflight.

Armando's LCC Found Photo.

Armando Oliu dug up a photo from April 11, 1968; see below (thank you Armando!). The caption on the photo is "Visit of Swedish and American Rotarians to Kennedy Space Center." So we asked ourselves where the photo was taken. Armando suggested the LCC as a possibility, so I checked it out and we were able to convince ourselves the location of the photo was the LCC Lobby, with the columns, recessed ceiling and some doorways matching up nicely. See the current photo for the recreation of the 1968 photo.



Minuteman Then and Now.

Pete Chitko sent me an email with a link to a video with the question: “At 2 minutes into this one, where do you think that is?” The video is at <https://www.youtube.com/watch?v=PXeiFZcf8p0> and is titled “Cape Kennedy 1965”. The video includes some good footage of the Gemini missions that year. Okay, on with the question of “where is it” at 2 minutes into the video. I suspected the rocket shown was a Minuteman so I dug around a little bit and found the below vintage photo of a Minuteman missile on the CCAFS Air Force Space and Missile Museum web site; <http://afspacemuseum.org/>. The photo includes some mounded landscaping and another key feature is the two water towers at CCAFS at the time, in the background. Knowing Minuteman launches took place at CCAFS Launch Complexes 31 and 32, I made my way over to CCAFS and was able to recreate the “area of the vintage Minuteman photo”; see below with the one remaining CCAFS water tower in the center of the photo, in the background. Another good clue is the recreated photo “area” is close to the subject launch complexes off Flight Control Road. There were a total of 92 Minuteman missiles launched from Launch Complexes 31 and 32 between February 1, 1961, and December 15, 1970.



Lunar Rover Garage.

Taking a lead from “Spaceshots and Snapshots of PROJECT APOLLO”, there was a photo on page 184 that caught my attention; see below. The photo caption reads “Cernan drives the LRV trainer on October 11, 1972, from the MSOB toward the outdoor simulated lunar training area known as the “rockpile”. ... “The Gemini suiting trailer, relocated from LC-16, is in the background.” I have written about the Gemini suiting trailer in a previous NIU. I wanted to find out the exact location of the photo and try to recreate it. So, I made my way to the vintage Flight Crew Training Building, now the Engineering Development Laboratory (EDL) in the KSC Industrial Area, thinking that was a good place to start. And so, from roughly the same vantage point as 1972, I recreated the vintage photo; see the photo with the forklift in the foreground and the light poles in the background lining up roughly in the same location as the vintage photo. The forklift is just not quite the same as the Lunar Rover! Also included is a photo from Apollo 15 lunar rover training showing Dave Scott and Jim Irwin with the EDL and the suiting trailer in the background, from a different vantage point and my recreated photo, with light poles, again, lining up nicely. The building in the background of the current photo is the Space Station Processing Facility.





Another neat photo, what I am calling the lunar rover garage, is taken from the opposite direction of one of the previous photos, with the same forklift in the foreground and the lunar rover garage door (roll up type, under the awning) in the background; neat stuff!



Swamp Works Sculpture.

There is a neat sculpture currently on display at Swamp Works at KSC, physically located at the EDL; see photos. Also included is a photo of the Swamp Works logo mounted on the building. Swamp Works accomplishes rapid, innovative and cost-effective solutions, vis-a-vis the original Lockheed Skunk Works. If you Google KSC Swamp Works you can find out more neat information. The display is constructed with BP-1, a lunar regolith simulant used for robotics traction and excavation testing. The sculpture honors Swamp Works' dedication to ISRU (in situ resource utilization) by featuring robots and an astronaut constructing a structure out of lunar regolith.



A Photo From the John Tribe Collection.

A photo from the John Tribe collection is shown below (thanks John!), from February 1964 showing the General Dynamics Astronautics Engineering Team for the Ranger 6 mission at the LC-12 blockhouse. John is third from the left in the first row. Ranger 6 was part of the Ranger Program whose objective was to return the first close-up images of the surface of the Moon. Ranger 6's camera system failed so no images were returned however the next three Ranger missions, Ranger 7, 8 and 9 were successful with photos taken. A then and now perspective of the vintage photo is provided as I took a current photo in the same general vicinity of the 1964 photo, although it is hard to tell from the photo. All the Ranger missions launched from LC-12. Most of the pad was dismantled in 1976 and the blockhouse was demolished in 2009. As I have said before for these demolished areas/facilities, it's as if it was never there.



Starfighter Update.

It has been a while since I have written about Starfighters in the NIU, so I stopped by the Shuttle Landing Facility recently to see what was going on. The current fleet of F-104s is now something like seven operational aircraft including three two-seaters and one that is decked out as a “Blackbird”; see attached photo; neat stuff! Several more F-104s are expected in the next year or so. You can find out more about Starfighters at their web site: <http://www.starfighters.net/>.



“To The MOON” and Remaining VAB Vintage Door Logos/Signs.

There are not too many remaining Apollo vintage company logo signs/decals and such in the VAB, so I thought I would share what I know about what remains. Before the office demolition in B, E and other VAB Towers, there were more such things. There is a Grumman company decal remaining on the 28th floor of E Tower, on the East stairwell door; see photo. There is also a North American Rockwell decal on the 28th floor of F Tower, on the East stairwell door and there is what remains of a similar decal on the 30th floor of the E Tower East stairwell door; see photos. Remember, workers were generally physically located close to where their hardware was located/stacked on the Saturn V.



Now for some non-company vintage type logo and stuff, Beth Kline recently pointed out there was a notation on the 14th floor of F Tower East, close to the walkway/entrance to the VAB 175 ton crane (thank you Beth!). The notation states "To The MOON"; see photo. Very neat!



And on the VAB false roof, literally just below the roof, in the vicinity above High Bay 1, there is the following notation: "Top Fuel N.H.R.A." I believe this would have been added when the VAB false roof was added/installed in the High Bays, circa 1994, and not from the original building construction circa 1965.



VAB Phantom Door.

Taking a lead from a photo on page 68 of “Moonshots and Snapshots of PROJECT APOLLO”, there appeared to be a door/opening of sorts high up on the east face of the VAB. So I am thinking what the heck is this? So I started digging, getting some assistance from Armando Oliu and Elaine Liston. Below is a photo showing the 1st stage of the Apollo 11 rocket arriving at KSC, dated February 21, 1969, and also showing the VAB opening in frame (thank you Armando and Elaine!).



I sent an email to Frank Bryan asking about the door/opening and he responded with: “Your picture/question hit me at the right time - I went to our NASA Alumni lunch today and the first fellow I showed it to had the whole story. He was the manager in charge. The door was cut to allow design testing of the slide wire escape system. The door was placed at the same height as the escape station would be on the LUT and a cable strung as it was planned for the slide wire system at the pad. Tests were run to support design of the cars, braking, and other parts of the system. Wayne Owens, DE manager, told me about it. He said the first time they sent a weight down the wire, they had Debus watching, and due to miscalculation the weight crashed at the end of the run.” Thanks Frank!

In turn, I got with Lori Uffner who retrieved a Test Report describing what testing was performed (thank you Lori!). The Test Report is 181 pages long with many pages of test data sheets. I have published previous NIU articles on the Apollo heritage and before slide wire systems. The following is extracted from the Test Report:

“PURPOSE

Testing was performed from December 24,



1968, through January 17, 1969, as dictated by EFT-39-13328-1, Phases I, II, and III. Test activities were performed at the Vehicle Assembly Building (VAB) and Launch Complex 39A.

METHOD

Testing started on December 24, 1968, utilizing a slide wire cable extending from 34 level, E Tower, of the VAB, through a tail tower sheave at Station 2200, and terminating at a tractor approximately -100 feet behind the tail tower.

The cab simulator (Figure 2-1) was attached to the slide wire cable, in the landing area, using four type 279 trolleys with no brakes. Utilizing the retriever cable, the cab simulator was pulled up the slide wire cable to various distances from the terminal arrestor impact point (Station 1675). The slide wire cable was then tensioned to operational height, using a previously established bench mark that had been established by tensioning an unloaded cable to 16,500 pounds. Release was accomplished by, pulling, from the ground, a nylon rope that was attached to a quick release assembly located between the cab simulator and the retriever trolley. The cab simulator traversed the slide wire, impacting the arrestor pad at Station 1675. Release distances were varied to obtain varied impact velocities.

The cab simulator was fabricated so that plates could be removed when the total weight was to simulate a 3-man load. A total weight of 3,070 pounds was used to simulate a 9-man run, and 2,084 pounds was used for a simulated 3-man run. The cab simulator was fabricated with a shape factor so that wind effects could be minimized and high impact velocities could be obtained.

TEST RESULTS SUMMARY

During Phase I test activities, Runs 1 through 33 were accomplished at the VAB test site. They were completed in 5 working days on a 2-shift basis.”

With the morning sun shining on the east face of the VAB, you can still see where the opening was with your naked eye, looking up from the ground level outside the VAB. From inside the VAB, you can see where the door/opening was paneled over (different shading/color panels) and the attachment point for the slide wire is still in place, as the VAB was modified structurally to accommodate the slide wire. Below are a couple of photos from inside the VAB, one showing the door outline/location, and the other shows the slide wire attachment point. As noted in the Test Report, the door/opening location was on the 34th floor of E Tower.





Neat Photo of OPF1 and C3PF.

Driving to or from the OPF1/C3PF area recently, it struck me there was a neat photo opportunity with the logos on both facilities that was just too neat to pass up, so I think the photo speaks for itself; neat stuff! Note the number “1” is still on the OPF, to the left of the X-37B signage!

