<p align="center">**Supplemental Materials**</p>

Progress Logs
Green shading shows start and end of envelop creation; yellow shading id for interior)

L-20-5-b

- 9/10/20 - Took scans of Rowan Hall and began manually registering XXXXX scans in Recap Pro.
- 9/15/20 - Continued working on the XXXXX Recap project. Had some trouble identifying the XXXXX scans in the Google File Stream (I think this is when Rachel and I took the YYYYY scans and XXXXX scans on the same SD card).
- 9/17/20 - Continued working on the XXXXX Recap project. About 75% complete on merging all of the scans.
- 9/22/20 - Finished merging scans; began indexing the XXXXX Recap project. Created Google Doc for 25% Progress report that's due next week.
- 9/22/20 - XXXXX Recap point cloud was successfully indexed. Began removing the noise from the point cloud and began writing the 25% progress report.
- 9/29/20 - Continued to work on 25% report and was having difficulty working with the XXXXX Recap file. It is running really slow and taking forever to load; i've tried to restart my computer many times but no luck.
- 10/1/20 - Finished writing 25% report. Still having difficulties with Recap (I believe it's because we are working off of Google File Stream). I'm mostly done with cleaning up the noise in the XXXXX Recap file and tried to import the point cloud into Revit to see how it looked.
- 10/6/20 - Still no luck with the XXXXX Recap file and tried to import it into Revit with no luck. I am now restarting on the XXXXX Recap file stitching the scans together but will be saving it onto my desktop instead of File Stream. Hopefully I will complete the point cloud by Thursday. Did some research about the problems we've been having working off of File Stream and it's apparent that it's a common thing for people to have trouble working off of File Stream using Autodesk products and these programs aren't compatible.
- 10/8/20 - 75% done stitching together XXXXX scans on my desktop and not thru File Stream. Still no luck using the original Recap file that was copied from File Stream to my desktop; would run slow when imported into Revit so I just decided to re-do the point cloud. Should be completed early next week.
- 10/13/20 - Began working on the midterm presentation; 90% done merging scans (ran into a few issues with the scans so going back over and making sure the scans are merged properly). Will index point cloud on Thursday and hopefully have the point cloud completed and cleaned up by the end of this week.
- 10/15/20 - Had difficulties merging the exterior scans to the interior scans so I decided to create 2 different point clouds, one for the interior scans and one for the exterior scans. I completed the interior scans point cloud and will begin on the exterior scans point cloud next week. Completed some slides in the midterm presentation google slides.
- 10/20/20 - Successfully completed the interior and exterior scan point clouds; was able to import them into Revit and began updating the elevations of this readiness center

(floor, roof, and drill hall roof); completed my slides in the midterm presentation; copied the completed point clouds from my desktop on google file stream.

- 10/22/20 - Completed slides in midterm presentation; began updating 50% report; began creating building envelope in Revit.
- 10/27/20 - Completed midterm presentation and practiced with the team; finished updating my sections in the 50% report; walls and floors completed for the building envelope.
- 11/3/20 - Completed my section in the 50% report, submitted midterm presentation and peer evaluation for midterm presentation. Continued to work on the XXXXX Readiness Center building envelope; started adding doors and windows to the building envelope.
- 11/10/20 - Continued to work on the XXXXX Readiness Center building envelope in Revit; have been making adjustments to the walls, floors, and ceilings to match the point cloud. Inserted some windows and doors too. Saved copy of current Revit file to Google File Stream.
- 11/12/20 - Completed building envelope of the XXXXX Readiness Center with all exterior windows and some exterior doors. Added some grass to make it look better. All floors, walls, ceilings, and roofs should be accurate compared to exterior and interior point clouds and the floor plan that was provided for this building. Saved onto File Stream and will continue to add more exterior and interior doors. Completed my part of the 75% report.
- 11/17/20 - Finished adding interior doors and wall openings into the XXXXX Revit file. Building envelope about 95% complete, just have to add some more doors and make sure I have all the windows completed. Will start working on the 100% report this week.
- 11/19/20 - Completed XXXXX building envelope and labeled every room to create a floor plan. Took screenshots in Autodesk Viewer and added to 100% report.
- 11/24/20 - Continued working on 100% report.
- 12/1/20 - Continued working on 100% report and began working on final presentation.
- 3/2/21 - Forgot to log progress from the beginning of Spring 2021 Semester but have finished building envelope and have been working on the implementation of plumbing systems to my building envelope. I created a separate file just for Plumbing 'XXXXX_Plumbing' in Google Drive and have added toilets and urinals for men's and women's bathrooms. Added a domestic water supply pipe route and a drainage pipe route for the water closets.
- 3/9/21 - Revised 33% report and began on midterm presentation draft. Continued to implement plumbing system into building envelope.
- 3/16/21 - Continue working on midterm presentation. Finished plumbing system in Revit. Can be found in File Stream under 'XXXXX_Plumbing'. Began to work on electrical system in Revit in a separate file 'XXXXX_Electric'.
- 3/18/21 - Midterm presentation.
- 3/23/21 - Continued working on Electrical by placing lighting fixtures.
- 3/25/21 - Continued working on Electrical by placing lighting fixtures, light switches, and electrical panels. Began creating switch and energy systems. Discovered how to connect

systems to panels (make sure the voltages of the fixtures and switches match the voltage of the panel).

- 3/30/21 - Began working on 66% report and finished updating my sections of the report. Added another component to the plumbing system because I realized that I had forgot to add a sink in the utility closet, completing the plumbing systems for XXXXX. Completed electrical systems too but couldn't figure out how to display the electrical circuits without hovering over the circuit.
- 4/1/21 - Completed electrical circuits and systems for envelope. Had to finish drill hall ceiling. Continued working on 66% report.
- 4/6/21 - Started new Revit file for the HVAC systems; having some difficulty knowing which components to use for baseboard radiators,etc. Added 'MEP Systems' section to 66% report and finished my section in the report.
- 4/8/21 - Finished working on 66% report. Continued to work on HVAC Revit. Didn't know how to include a ceiling plan in Revit so I downloaded a MEP system template and saved it as 'XXXXX_HVAC2' and restarted in this file. I kept the other HVAC Revit file b/c it had location of baseboard radiators that I would like to copy over into the template.
- 4/13/21 - Continued working on HVAC revit.
- 4/15/21 - Finished placing HVAC components in Revit and decided not to add any duct layouts because it's arbitrary in the grand scheme of things. Started adding final things to final report and presentation. Will begin fire protection systems next week hopefully.
- 4/20/21 - worked on final report and final presentation.
- 4/22/21 - finished sections in final report and final presentation. Started watching tutorials to add fire protection systems to building envelope. Not sure if this will be implemented during this semester.

Supplemental Materials

F-21-5-b

- 9/7/21 - Met with group and got a basic understanding of what BIM is, logged into autodesk account and set up autorecap, then chose what building I would be stitching together which was XXXXXX, then we took the scanner out and did a few sample scans
- 9/9/21 - received presentation in room 240, got a demo on how to stitch files together in recap, began stitching files together
- 9/14/21 - continued stitching files together in recap for the duration of the class
- 9/16/21 - received sustainable presentation 2 in room 240, continued and finished stitching scans together, began indexing scans for class on 9/21
- 9/21/21 - scans finished indexing, gave progress update to professor Everett, looked at samples for 33% memo and presentation explored point cloud, cleaned up the point cloud a bit, watched the first revit tutorial and explored revit and some of its commands
- 9/23/21 - received sustainable presentation, copied recap file into the bim drive, watched the rest of the revit tutorials and began messing around with some of the commands in revit, had some computer issues at the beginning of class
- 9/27/21 - absent
- 9/30/21 - absent
- 10/5/21 - gave a short summary of the work we have been doing to professor everett, worked on the 33% report and presentation
- 10/7/21 - continued working on the 33% report and presentation, received sustainable presentation
- 10/12/21 - had computer issues, couldn't get point cloud into revit cleanly, realized i needed to clean up the point cloud more
- 10/14/21 - cleaned up point cloud, finalized and sent in presentation and report
- 10/19/21 - gave sample presentation to professor everett, photographers came in and took pictures, began working on the revit file
- 10/21/21 - worked on revit, discussed with john earlier in the week about leaving early, left around 2:00
- 10/25/21 - mid semester presentations
- 10/28/21 - finished floor plan and walls in revit
- 11/2/21 - began learning how to place doors, left early due to a migraine
- 11/4/21 - finished placing doors, learned how to place windows for next class
- 11/9/21 - got some extra practice with windows before starting to place them in revit, had to change some of the window models in revit to fit my buildings needs, edited some wall heights and door placements
- 11/16/21 - struggled to size windows correctly to the ones on the point cloud, got a few windows placed
- 11/18/21 - made more progress with windows, finalized 66% report
- 11/23/21 - continued working on the exterior model in revit
- 1/25/22 - began placing walls for interior model, placed some doors in interior model
- 1/27/22 - finished interior walls and continued placing doors into interior model, ran into a problem with some of the door types to figure out next class

Supplemental Materials

- 2/1/22 - continued interior model, touched up some walls and continued adding doors, had to leave early due to an interview
- 2/3/22 - finished placing doors and created some openings in certain walls that needed to be created
- 2/8/22 - continued interior model and read one HVAC SOP
- 2/15/22 - figured out how to create model of chain link fence for storage area, still have to learn how to add doors and poles if necessary
- 2/17/22 - finished implementation of fence model and created doors for fence cage, plan for next week is to have the full cage done with posts if necessary
- 2/22/22 - continued working on fence model, created mid semester presentation slideshow
- 2/24/22 - looked into the HVAC systems and placed toilets and sinks for bathrooms
- 3/1/22 - worked on revit model, worked on fence, worked on mid semester presentation
- 3/3/22 - worked on mid semester presentation, worked on 33% report
- 3/22/22 - began working on identification and addition of HVAC systems, went over resume and accomplishment memo comments with professor everett
- 3/29/22 - added some hvac systems and explored what systems need to be added for the building model, began looking at insight in revit
- 3/31/22 - basic insight model, generated fully optimized insight model for building
- 4/14/22 - worked with insight modeling, basic floorplan work
- 4/21/22 - final presentation, hvac systems, changed mistake on roof

Master BIM Template Creation

1. Open Revit New Project

   Select Template File → Architectural Template
2. Go to Manage Tab

   Select Project Parameters → Add
   In the Parameter Data window enter:
       Name ("Name of Parameter")
       Type of Parameter = Text
       Group Parameter = Text
       Value can vary by group Instance
       Filter list checkbox = Architecture
       Check All Categories
   Close Window
3. Repeat step 2 for the following Parameters:
   SEC_NAME
   SEC_ID
   SEC_YEAR
   SEC_DATE PAINTED
   SEC_COMMENT
   SEC_REMAIN LIFE
   SEC_PAINT RSL
   SEC_CI
   SEC_CII
   SEC_REPLACE_COST
   SEC_PAINT_COST
   SEC_NEXT YEAR CI
   SD_SEC_ID
   ID_NUMBER
   EQUIPMENT_TYPE
   EQUIPMENT_MAKE
   CAPACITY
   DATE_MANUFACTURED
   DATE_INSTALLED
   CONTROL_TYPE_MAKE
   WARRANTY_DATE
   WARRANTY_COMPANY LOCATION
4. Save Revit file as Master BIM Model Template.

Building-specific BIM Template Creation

1. Open BUILDER SMS BRED file in Access and export the following queries to Excel file:
   - Component Section
   - Section Details

2. Open exported Excel file. Identify the SEC_NAME column.

3. Open Master BIM Model Template in Revit

Exterior Walls with SEC_NAME

1. Select Architect Tab → Walls

2. Select Exterior – Brick on CMU

3. Select Edit type → Duplicate
   Name = NJDMVA – Brick on CMU – "SEC_NAME"
   Click Ok.

4. Repeat steps 1 – 3 for all walls.

Exterior Door/Window with SEC_NAME

1. Select Architect Tab → Door or Window

2. Select Door or Window Type

3. Select Edit type → Duplicate
   Name = NJDMVA – DOOR OR WINDOW – "SEC_NAME
   Click Ok.

4. Repeat steps 1 – 3 for all Door and Windows.

Foundation with SEC_NAME

1. Select Architect Tab → Floor

2. Select Floor: Structural

3. Select Edit type → Duplicate
   Name = NJDMVA – FOUNDATION – "SEC_NAME"
   Click Ok.

JOHN – WHAT ABOUT DATA TRANSFER?