

Flamingo Fashions Limited, Unit-2 (Extension)

Category
Yellow

Mariali, Joydebpur, Gazipur.

(24.009383, 90.415109)

16 January 2023 & 26 February 2023



Buildings Information

Lingerie Shed: This structure is a single storied steel shed.

Store Shed: This structure is a single storied steel shed.

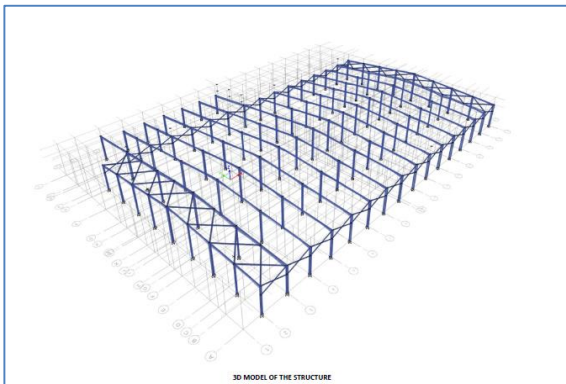
EGB Steel Building: This structure is a three storied steel structure.

RMS Room: This structure is single storied reinforced concrete building.

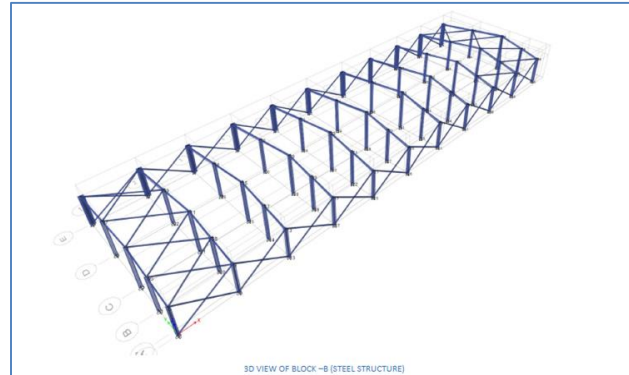
Molding & Civil Store Shed: This structure is a single storied steel shed.

Observations

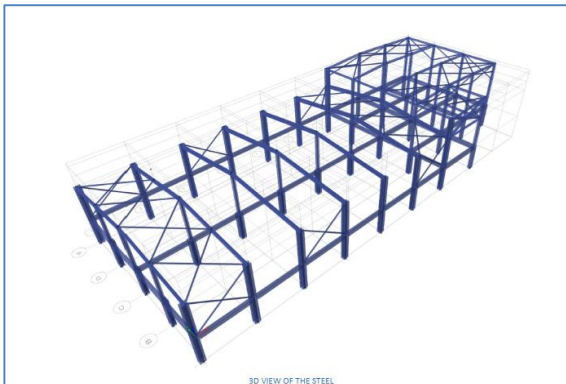
Retrofitting design requires detail review



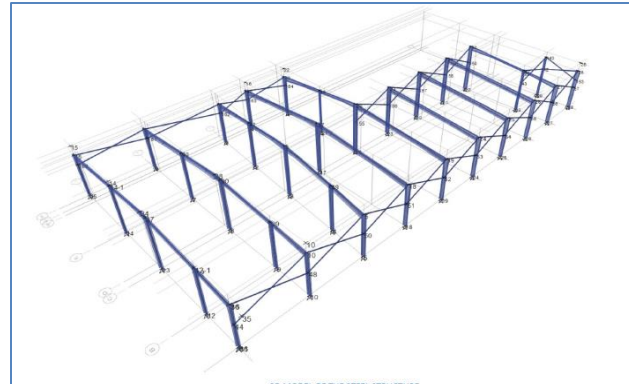
Design Report of A



Design Report of B



Design Report of C



Design Report of D

Moreover, in the provided design report material specification, details calculation of wind and other input values are not mentioned. In FEA model yield strength of rafter has been considered 50 ksi. Before submitting the EA the building engineer is required to incorporate the all the issues in revised EA.

The factory conducted retrofitting with some irregular sections which are modeled with equivalent sections in the analysis software. During inspection Engineering Assessment (EA) report was available onsite. The factory is required to submit the EA report to the RSC for detail review.

BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY (BUET)
DEPARTMENT OF CIVIL ENGINEERING
STRENGTH OF MATERIALS LABORATORY

TEST OF DEFORMED M.S. BARS (ASTM A 618-10)

Serial No. 101-102-103-104-105-106-107-108-109-110-111-112-113-114-115-116-117-118-119-120-121-122-123-124-125-126-127-128-129-130-131-132-133-134-135-136-137-138-139-140-141-142-143-144-145-146-147-148-149-150-151-152-153-154-155-156-157-158-159-160-161-162-163-164-165-166-167-168-169-170-171-172-173-174-175-176-177-178-179-180-181-182-183-184-185-186-187-188-189-190-191-192-193-194-195-196-197-198-199-200-201-202-203-204-205-206-207-208-209-210-211-212-213-214-215-216-217-218-219-220-221-222-223-224-225-226-227-228-229-230-231-232-233-234-235-236-237-238-239-240-241-242-243-244-245-246-247-248-249-250-251-252-253-254-255-256-257-258-259-260-261-262-263-264-265-266-267-268-269-270-271-272-273-274-275-276-277-278-279-280-281-282-283-284-285-286-287-288-289-290-291-292-293-294-295-296-297-298-299-300-301-302-303-304-305-306-307-308-309-310-311-312-313-314-315-316-317-318-319-320-321-322-323-324-325-326-327-328-329-330-331-332-333-334-335-336-337-338-339-340-341-342-343-344-345-346-347-348-349-350-351-352-353-354-355-356-357-358-359-360-361-362-363-364-365-366-367-368-369-370-371-372-373-374-375-376-377-378-379-380-381-382-383-384-385-386-387-388-389-390-391-392-393-394-395-396-397-398-399-400-401-402-403-404-405-406-407-408-409-410-411-412-413-414-415-416-417-418-419-420-421-422-423-424-425-426-427-428-429-430-431-432-433-434-435-436-437-438-439-440-441-442-443-444-445-446-447-448-449-450-451-452-453-454-455-456-457-458-459-460-461-462-463-464-465-466-467-468-469-470-471-472-473-474-475-476-477-478-479-480-481-482-483-484-485-486-487-488-489-490-491-492-493-494-495-496-497-498-499-500-501-502-503-504-505-506-507-508-509-510-511-512-513-514-515-516-517-518-519-520-521-522-523-524-525-526-527-528-529-530-531-532-533-534-535-536-537-538-539-540-541-542-543-544-545-546-547-548-549-550-551-552-553-554-555-556-557-558-559-560-561-562-563-564-565-566-567-568-569-570-571-572-573-574-575-576-577-578-579-580-581-582-583-584-585-586-587-588-589-590-591-592-593-594-595-596-597-598-599-600-601-602-603-604-605-606-607-608-609-610-611-612-613-614-615-616-617-618-619-620-621-622-623-624-625-626-627-628-629-630-631-632-633-634-635-636-637-638-639-640-641-642-643-644-645-646-647-648-649-650-651-652-653-654-655-656-657-658-659-660-661-662-663-664-665-666-667-668-669-670-671-672-673-674-675-676-677-678-679-680-681-682-683-684-685-686-687-688-689-690-691-692-693-694-695-696-697-698-699-700-701-702-703-704-705-706-707-708-709-710-711-712-713-714-715-716-717-718-719-720-721-722-723-724-725-726-727-728-729-730-731-732-733-734-735-736-737-738-739-740-741-742-743-744-745-746-747-748-749-750-751-752-753-754-755-756-757-758-759-760-761-762-763-764-765-766-767-768-769-770-771-772-773-774-775-776-777-778-779-780-781-782-783-784-785-786-787-788-789-790-791-792-793-794-795-796-797-798-799-800-801-802-803-804-805-806-807-808-809-810-811-812-813-814-815-816-817-818-819-820-821-822-823-824-825-826-827-828-829-830-831-832-833-834-835-836-837-838-839-840-841-842-843-844-845-846-847-848-849-850-851-852-853-854-855-856-857-858-859-860-861-862-863-864-865-866-867-868-869-870-871-872-873-874-875-876-877-878-879-880-881-882-883-884-885-886-887-888-889-890-891-892-893-894-895-896-897-898-899-900-901-902-903-904-905-906-907-908-909-910-911-912-913-914-915-916-917-918-919-920-921-922-923-924-925-926-927-928-929-930-931-932-933-934-935-936-937-938-939-940-941-942-943-944-945-946-947-948-949-950-951-952-953-954-955-956-957-958-959-960-961-962-963-964-965-966-967-968-969-970-971-972-973-974-975-976-977-978-979-980-981-982-983-984-985-986-987-988-989-990-991-992-993-994-995-996-997-998-999-1000

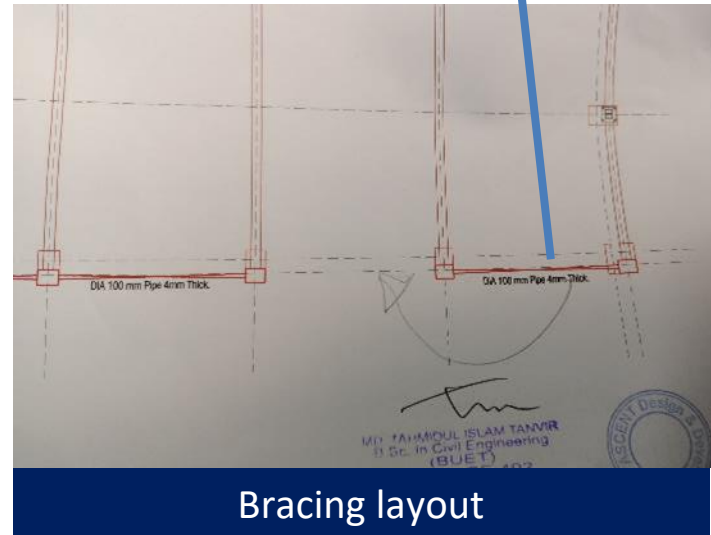
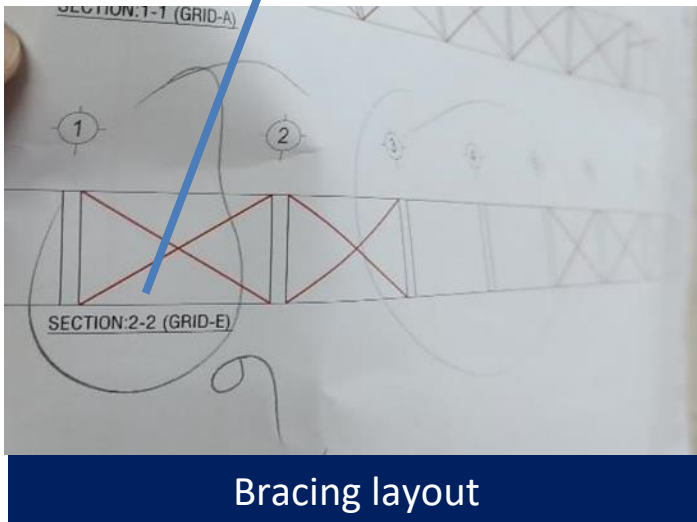
Sl. No.	Bar Identification	Bar Size (mm)	Bar Length (mm)	Average Yield Strength (MPa)	Average Tensile Strength (MPa)	Average Elongation (%)	Remarks
1	3045, 45	16	1514	51.9	57.5	426	4
2	3045, 45	16	1514	52.2	58.5	435	5
3	3045, 45	16	1477	54.1	59.4	465	18

BUET Logo, QR Code, and Signatures are present at the bottom of the report.

MS plate test report without average value
Minimum yield strength 309 MPa or 44.8 ksi

Observation: Lingerie Shed-Part A, B, C & D

Vertical bracing missing



Bracing was found missing at corner grid of Lingerie Shed-part B & C as per the factory provided drawing. Building engineer is required to install the missing bracing as per the accepted drawings.

**Non-structural elements not
anchored or braced**



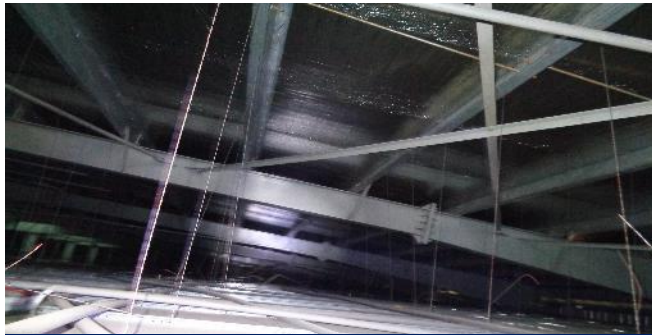
Racks on floor level



Racks without anchoring

Some racks on the floor are not adequately anchored or braced to resist lateral (earthquake) forces. Building engineer is required to adequately anchor and brace all non-structural elements to resist earthquake forces to comply with the BNBC.

Absence of design documents



Extension Part 1



Extension Part 2



Extension Part 3



Extension Part 4

As per BNBC, every building or structure designed shall have its design documents prepared in accordance with the provision of Section 1.9.1. The design document shall include a design report, and a set of structural drawings, which shall be prepared in compliance with section 1.9.1.1 and section 1.9.1.2, part-6 of BNBC. At the time of inspection, only as-built drawings were available, but no design report was available which are required to be prepared in compliance with section 1.9.1.1 (part-6, BNBC).

No design report was available for the extension part of 1, 2 3 & 4 of Lingerie Shed.

Observation: Lingerie Shed-Extension Part 1, 2, 3 & 4

Lack of design documents



Inside of Store Shed



Store Shed

As per BNBC, every building or structure designed shall have its design documents prepared in accordance with the provision of Section 1.9.1. The design document shall include a design report, and a set of structural drawings, which shall be prepared in compliance with section 1.9.1.1 and section 1.9.1.2, part-6 of BNBC. At the time of inspection, only as-built drawings were available, but no design report were available which are required to be prepared in compliance with section 1.9.1.1 (part-6, BNBC).

Observation: Store Shed

Bolt missing and connection gap

Bolt missing and significant gaps observed in Rafter-column joint at several locations. Building engineer is required to carry out suitable remedial works.



Gap observed in connections



Bolt missing

Lack of drawing for steel part



Inside of EGB Room



EGB Steel Building

As per BNBC, every building or structure designed shall have its design documents prepared in accordance with the provision of Section 1.9.1. The design document shall include a design report, and a set of structural drawings, which shall be prepared in compliance with section 1.9.1.1 and section 1.9.1.2, part-6 of BNBC. At the time of inspection, only as-built drawings were available for RC part, but no design report and as built drawing for steel part were available which are required to be prepared in compliance with section 1.9.1.1 (part-6, BNBC).

Observation: EGB Steel Building

Apparently inadequate connection



Truss member



Connection with RC column

Apparently inadequate connection between truss and RC column was observed. Truss members were welded with base plate and base plates were welded with the rebar of RC column. On other hand connection details were not found in the provided drawings. Building engineer is required to check the connection adequacy of the truss against uplift force of wind.

Observation: Molding & Civil Store Shed

Problems Observed

Lingerie Shed:

Item 01: Retrofitting design requires detail review. (Part A, B, C & D)

Item 02: Missing Vertical Bracing. (Part B & C)

Item 03: Non-structural elements not anchored or braced. (Part C)

Item 04: Absence of design documents.

Store Shed:

Item 05: Lack of design documents.

Item 06: Bolt missing and connection gap.

EGB Steel Building:

Item 07: Lack of as-built drawings design documents.

Molding & Civil Store Shed:

Item 08: Apparently inadequate connection.

Item No.	Observation	Recommended Action Plan	Recommended Timeline
01	Retrofitting design requires detail review. (Lingerie Shed-Part A, B, C & D)	Building engineer is required to submit the Engineering Assessment (EA) to the RSC for detail review.	6-weeks
02	Retrofitting design requires detail review. (Lingerie Shed-Part A, B, C & D)	Carry out remedial action if required.	6-months
03	Vertical bracing missing. (Lingerie Shed-Part B & C)	Install the vertical bracing as per accepted drawings.	6-weeks
04	Non-structural elements not anchored or braced. (Lingerie Shed-Part C)	Building engineer is required to adequately anchor and brace all non-structural elements to resist earthquake forces to comply with the BNBC.	6-weeks
05	Absence of design documents. (Lingerie Shed-Extension Part 1, 2, 3 & 4)	Building engineer is required to prepare the design documents including a design report, and a set of structural drawings in compliance with section 1.9.1.1 and section 1.9.1.2, part-6 of BNBC and submit it to RSC for review.	6-weeks
06	Absence of design documents. (Lingerie Shed-Extension Part 1, 2, 3 & 4)	Carry out remedial works (if any) after reviewed by the RSC.	6-months

Item No.	Observation	Recommended Action Plan	Recommended Timeline
07	Lack of design documents. (Store Shed)	Building engineer is required to prepare the design documents including a design report, and a set of structural drawings in compliance with section 1.9.1.1 and section 1.9.1.2, part-6 of BNBC and submit it to RSC for review.	6-weeks
08	Lack of design documents. (Store Shed)	Carry out remedial works (if any) after reviewed by the RSC.	6-months
09	Bolt missing and connection gap. (Store Shed)	Install the missing bolts where necessary.	6-weeks
10	Bolt missing and connection gap. (Store Shed)	Building engineer is required to repair the gap in connections with a suitable method.	6-weeks
11	Lack of design documents. (EGB Steel Building)	Building engineer is required to prepare the design documents including a design report, and a set of structural drawings in compliance with section 1.9.1.1 and section 1.9.1.2, part-6 of BNBC and submit it to RSC for review.	6-weeks
12	Lack of design documents. (EGB Steel Building)	Carry out remedial works (if any) after reviewed by the RSC.	6-months

Item No.	Observation	Recommended Action Plan	Recommended Timeline
13	Lack of design documents. (EGB Steel Building)	Building engineer is required to carry out the Engineering Assessment (EA) to check connection adequacy against the uplift force.	6-weeks
14	Lack of design documents. (EGB Steel Building)	Carryout remedial work if required.	6-months