

Guaçuí-ES, 28 agosto de 2023.

OBRA: Melhorias na EMEF Professora Elvira Bruzzi

LOCAL: EMEF EMEF Professora Elvira Bruzzi (Distrito São Pedro de Rates)

MEMÓRIA DE CÁLCULO

01 – SERVIÇOS PRELIMINARES

01.01 – Placa de obra 1,50m x 2,00m

TOTAL DO ITEM = 3,00m²

01.02 – Demolição de revestimento com azulejos

Sala 01 → $[(6,45m_{comp} + 2,00m_{comp} + 5,95m_{comp} + 6,45m_{comp}) \times 1,05m_{alt}] - [(0,80m_{comp} \times 1,05m_{alt})] = 21,05m^2$

Sala 02 → $[(6,45m_{comp} + 2,00m_{comp} + 5,95m_{comp} + 6,45m_{comp}) \times 1,05m_{alt}] - [(0,80m_{comp} \times 1,05m_{alt})] = 21,05m^2$

Sala 03 → $\{[(4,21m_{comp} + 4,21m_{comp} + 6,85m_{comp} + 6,85m_{comp}) \times 1,05m_{alt}] - [(0,80m_{comp} \times 1,05m_{alt})]\} = 22,38m^2$

Sala 04 → $\{[(6,15m_{comp} + 6,15m_{comp} + 5,95m_{comp} + 5,95m_{comp}) \times 1,05m_{alt}] - [(0,80m_{comp} \times 1,05m_{alt})]\} = 24,57m^2$

Banheiro Masculino → $\{[(3,22m_{comp} + 3,22m_{comp} + 5,95m_{comp} + 5,95m_{comp}) \times 2,90m_{alt}] + [(1,18m_{comp} + 1,18m_{comp} + 1,18m_{comp} + 1,18m_{comp} + 1,18m_{comp} + 2,21m_{comp} + 1,06m_{comp} + 1,08m_{comp} + 1,08m_{comp}) \times 1,70m_{alt}] - [(0,80m_{comp} \times 2,10m_{alt}) + (0,98m_{comp} \times 0,55m_{alt}) + (0,98m_{comp} \times 0,55m_{alt})]\} = 51,68m^2$

Banheiro Feminino → $\{[(3,80m_{comp} + 3,80m_{comp} + 4,86m_{comp} + 4,86m_{comp}) \times 2,90m_{alt}] + [(1,41m_{comp} + 1,41m_{comp} + 1,41m_{comp} + 1,41m_{comp} + 1,41m_{comp} + 1,90m_{comp} + 0,93m_{comp} + 0,93m_{comp} + 1,08m_{comp}) \times 1,70m_{alt}] - [(0,80m_{comp} \times 2,10m_{alt}) + (0,98m_{comp} \times 0,55m_{alt}) + (0,98m_{comp} \times 0,55m_{alt})]\} = 67,68m^2$

TOTAL DO ITEM = 208,41m²

01.03 – Demolição de alvenaria

Sala 01/sala 02 → $[(3,95m_{comp} \times 2,77m_{alt}) \times 0,15m_{larg}] = 1,64m^3$

Mureta → $[(1,75m_{comp} \times 0,82m_{alt}) \times 0,25m_{larg}] = 0,36m^3$

Sala 03 → $[(1,20m_{comp} \times 1,20m_{alt}) \times 2] + [(0,80m_{comp} \times 2,10m_{alt})] = 2,88m^2 + 1,68m^2$
 $= 4,56m^2 \times 0,15m_{larg} = 0,68m^3$

TOTAL DO ITEM = 2,68m³

01.04 – Retirada de quadro de giz (1.29 x 3.95m)

Sala 03 → 1,00 und

Sala 04 → 1,00 und

TOTAL DO ITEM = 2,00 und

01.05 – Retirada de revestimento antigo em reboco m2 (local de retirada de ajulejo)

Fachada Externa dos fundos → $\{[(15,11m_{comp} \times 6,40m_{alt}) - [(2,00m_{comp} \times 1,20m_{alt}) \times 6_{und}] - [(1,60m_{comp} \times 1,20m_{alt}) \times 2_{und}] - [(0,80m_{comp} \times 0,60m_{alt})] - [(0,98m_{comp} \times 0,55m_{alt})]\}$
 $= 77,44m^2$

Beiral → $\{[(13,36m_{comp} \times 0,50m_{alt}) \times 2_{lados}] = 13,36m^3$

Sala 01 → $[(6,45m_{comp} + 2,00m_{comp} + 5,95m_{comp} + 6,45m_{comp}) \times 1,05m_{alt}] - [(0,80m_{comp} \times 1,05m_{alt})] = 21,05m^2$

Sala 02 → $[(6,45m_{comp} + 2,00m_{comp} + 5,95m_{comp} + 6,45m_{comp}) \times 1,05m_{alt}] - [(0,80m_{comp} \times 1,05m_{alt})] = 21,05m^2$

Sala 03 → $\{[(4,21m_{comp} + 4,21m_{comp} + 6,85m_{comp} + 6,85m_{comp}) \times 1,05m_{alt}] - [(0,80m_{comp} \times 1,05m_{alt})]\} = 22,38m^2$

Sala 04 → $\{[(6,15m_{comp} + 6,15m_{comp} + 5,95m_{comp} + 5,95m_{comp}) \times 1,05m_{alt}] - [(0,80m_{comp} \times 1,05m_{alt})]\} = 24,57m^2$

Banheiro Masculino → $\{[(3,22m_{comp} + 3,22m_{comp} + 5,95m_{comp} + 5,95m_{comp}) \times 2,90m_{alt}] + [(1,18m_{comp} + 1,18m_{comp} + 1,18m_{comp} + 1,18m_{comp} + 1,18m_{comp} + 2,21m_{comp} + 1,06m_{comp} + 1,08m_{comp} + 1,08m_{comp}) \times 1,70m_{alt}] - [(0,80m_{comp} \times 2,10m_{alt}) + (0,98m_{comp} \times 0,55m_{alt}) + (0,98m_{comp} \times 0,55m_{alt})]\} = 51,68m^2$

Banheiro Feminino → $\{[(3,80m_{comp} + 3,80m_{comp} + 4,86m_{comp} + 4,86m_{comp}) \times 2,90m_{alt}] + [(1,41m_{comp} + 1,41m_{comp} + 1,41m_{comp} + 1,41m_{comp} + 1,41m_{comp} + 1,90m_{comp} + 0,93m_{comp}) \times 1,70m_{alt}]\} = 51,68m^2$

$$+ 0,93m_{\text{comp}} + 1,08m_{\text{comp}}) \times 1,70m_{\text{alt}}] - [(0,80m_{\text{comp}} \times 2,10m_{\text{alt}}) + (0,98m_{\text{comp}} \times 0,55m_{\text{alt}}) + (0,98m_{\text{comp}} \times 0,55m_{\text{alt}})] = 67,68m^2$$

TOTAL DO ITEM = 299,21 m²

01.06 Demolição manual de concreto simples (EMOP 05.001.001)

Rampa → $(5,50m \times 1,25m \times 0,55m) = 3,78m^3$

Área Externa → $(4,00m \times 2,70m \times 0,20m) = 2,16m^3$

TOTAL DO ITEM = 5,94m²

01.07 –Lixamento de parede com pintura antiga PVA para recebimento de nova camada de tinta

Fachada Externa dos fundos 1 pav → $[(16,41m_{\text{comp}} \times 2,90m_{\text{alt}})] - [(1,62m_{\text{comp}} \times 1,12m_{\text{alt}})] - [(1,00m_{\text{comp}} \times 1,47m_{\text{alt}}) \times 2_{\text{und}}] - [(1,00m_{\text{comp}} \times 0,60m_{\text{alt}})] = 42,24$

Parede externa/área de serviço → $[(4,96m_{\text{comp}} \times 2,90m_{\text{alt}})] - [(0,98m_{\text{comp}} \times 0,55m_{\text{alt}})] - [(0,80m_{\text{comp}} \times 2,10m_{\text{alt}})] = 12,16m^2$

Fachada Externa dos fundos 2 pav → $[(21,37m_{\text{comp}} \times 2,95m_{\text{alt}})] - [(2,00m_{\text{comp}} \times 1,20m_{\text{alt}}) \times 6_{\text{und}}] = 48,64m^2$

Área de serviço externo → $[(4,67m_{\text{comp}} \times 2,80m_{\text{alt}})] + [(2,67m_{\text{comp}} + 2,67m_{\text{comp}}) \times 1,50m_{\text{alt}}] = 13,07 + 8,01 = 21,08m^2$

Corredor de acesso ao pátio → $[(6,25m_{\text{comp}} \times 2,90m_{\text{alt}}) \times 2_{\text{lados}}] = 36,25m^2$

TOTAL DO ITEM = 160,37m²

01.08– Retirada de esquadrias metálicas

Sala 01 → $(2,00m_{\text{comp}} \times 1,20m_{\text{comp}}) = 2,40m^2$

Sala 02 → $(2,00m \times 1,20) = 2,40m^2$

TOTAL DO ITEM = 4,80m²

01.09 – Retirada de aparelhos sanitários

Banheiro Masculino → 4,00 und

Banheiro Feminino → 4,00 und

TOTAL DO ITEM = 8,00 und

01.10 – Demolição de piso revestido com cerâmica inclusive lastro de concreto

Sala 03 → $(6,85\text{m} \times 4,21\text{m}) = 28,83\text{m}^2$

Pátio → $(4,11\text{m} \times 6,30\text{m}) = 25,90\text{m}^2$

Circulação → $(3,46\text{m} \times 2,86\text{m}) = 9,90\text{m}^2$

Banheiro Masculino → $(3,22\text{m} \times 5,95\text{m}) = 19,16\text{m}^2$

Rampa → $(3,99\text{m} \times 1,25\text{m}) = 4,98\text{m}^2$

TOTAL DO ITEM = 88,77m²

01.11 – REMOÇÃO DE PORTAS, DE FORMA MANUAL, COM REAPROVEITAMENTO (PORTA DE VIDRO).

Sala 03 → 1,00und

TOTAL DO ITEM = 1,00 und

01.12 – Retirada de portas e janelas de madeira, inclusive batentes

Banheiros masculino → $(0,70\text{m}_{\text{comp}} \times 1,70\text{m}_{\text{alt}}) \times 2_{\text{und}} = 2,38\text{m}^2$

Banheiros feminino → $(0,70\text{m}_{\text{comp}} \times 1,70\text{m}_{\text{alt}}) \times 2_{\text{und}} = 2,38\text{m}^2$

Sala 03 → $\{[(1,45\text{m}_{\text{comp}} \times 1,20\text{m}_{\text{alt}}) \times 2_{\text{und}}]\} = 3,48\text{m}^2$

TOTAL DO ITEM = 8,24m²

02 – MOVIMENTO DE TERRA

02.01 – Escavação manual em material de 1a. categoria, até 1.50 m de profundidade

Tubulação esgoto → $(30,00\text{m}_{\text{comp}} \times 0,30\text{m}_{\text{larg}} \times 0,35\text{m}_{\text{alt}}) = 3,15\text{m}^3$

Drenagem → $(15,00\text{m}_{\text{comp}} \times 0,30\text{m}_{\text{larg}} \times 0,35\text{m}_{\text{alt}}) = 1,575\text{m}^3$

TOTAL DO ITEM = 4,73m³

02.02 – Reaterro apiloado de cavas de fundação, em camadas de 20 cm

Tubulação esgoto → $(30,00\text{m}_{\text{comp}} \times 0,30\text{m}_{\text{larg}} \times 0,35\text{m}_{\text{alt}}) = 3,15\text{m}^3$

Drenagem → $(15,00\text{m}_{\text{comp}} \times 0,30\text{m}_{\text{larg}} \times 0,35\text{m}_{\text{alt}}) = 1,575\text{m}^3$

TOTAL DO ITEM = 4,725m³ - Volume da tubulação

$V = \pi \times r^2 \times h = \pi \times 0,10\text{m}^2 \times 45,00\text{m} = 1,413\text{m}^3$

$$4,725\text{m}^3 - 1,413\text{m}^3 = 3,31\text{m}^3$$

TOTAL DO ITEM = 3,31m³

03 - PAREDES E PAINÉIS

03.01 – Verga/contraverga reta de concreto armado 10 x 5 cm, Fck = 15 MPa, inclusive forma, armação e desforma

$$\text{Sala 03} \rightarrow \{[(1,20\text{m}_{\text{comp}} + 0,20\text{m}_{\text{comp}}) \times 2_{\text{und}}] + [(0,80\text{m}_{\text{comp}} + 0,20\text{m}_{\text{comp}})]\} = 3,80\text{m}$$

$$\text{Sala 01} \rightarrow (1,60\text{m} + 0,20\text{m}) = 1,80$$

$$\text{Sala 01} \rightarrow (1,60\text{m} + 0,20\text{m}) = 1,80$$

$$\text{Hall sala 01/02} \rightarrow (0,80 + 0,20) \times 2 = 2,00$$

$$\text{Banheiro sala 01/02} \rightarrow [(0,80 + 0,20) \times 2] + (0,80 + 0,20\text{m}) = 3,00$$

TOTAL DO ITEM = 12,40m

03.02 – Divisória de granito com 3 cm de espessura, assentada com argamassa de cimento e areia no traço 1:3, na cor cinza

$$\text{Banheiro Sala 03} \rightarrow [(0,70\text{m} \times 1,80)] = 1,26\text{m}^2$$

$$\text{Banheiro Sala 01/02} \rightarrow [(0,90\text{m} \times 1,80)] = 1,62\text{m}^2$$

TOTAL DO ITEM = 2,88m²

03.03 – Alvenaria de blocos cerâmicos 10 furos 10x20x20cm, assentados c/argamassa de cimento, cal hidratada CH1 e areia traço 1:0,5:8, esp. das juntas 12mm e esp. das paredes s/revestimento, 10cm (bloco comprado na fábrica, posto obra)

$$\text{Banheiro Sala 01/02} \rightarrow [(1,94\text{m}_{\text{comp}} + 1,94\text{m}_{\text{comp}} + 3,95\text{m}_{\text{comp}} + 3,95\text{m}_{\text{comp}}) \times 2,77\text{m}_{\text{alt}}] - \{[(0,80\text{m}_{\text{comp}} \times 2,10\text{m}_{\text{alt}}) \times 3_{\text{und}}]\} = 27,60\text{m}^2$$

$$\text{Bancada Banheiro Sala 01/02} \rightarrow [(0,50\text{m}_{\text{comp}} \times 0,90\text{m}_{\text{alt}})] = 0,45\text{m}^2$$

$$\text{Banheiro Sala 03} \rightarrow [(2,23\text{m} + 1,65\text{m}) \times 2,90\text{m}] - [(0,80\text{m}_{\text{comp}} \times 2,10\text{m}_{\text{alt}})] = 9,57\text{m}^2$$

$$\text{Bancada hall Banheiro Sala 01/02} \rightarrow [(0,50\text{m}_{\text{comp}} \times 0,90\text{m}_{\text{alt}})] = 0,45\text{m}^2$$

$$\text{Mureta} \rightarrow [(3,73\text{m} \times 0,50\text{m}) + (2,24\text{m} \times 0,50) + (0,90\text{m} \times 0,50\text{m})] = 3,43\text{m}^2$$

$$\text{Sala 03 (fechamento de vão de esquadria)} \rightarrow [(1,45\text{m}_{\text{comp}} \times 1,20\text{m}_{\text{alt}}) \times 2] + [(0,80\text{m}_{\text{comp}} \times 2,10\text{m}_{\text{alt}})] = 5,16\text{m}^2 - \text{abertura de vão para janelas e portas} = 5,16\text{m}^2 - 4,56\text{m}^2 = 0,60\text{m}^2$$

TOTAL DO ITEM = 42,10m²

03.04 – Alvenaria de blocos de concreto estrut. (14x19x39cm) cheios, c/ resist. mín. compr. 15MPa, assentados c/ arg. de cimento e areia no traço 1:4, esp. juntas 10mm e esp. da parede s/ revest. 14cm

Contenção área externa ao lado da área de serviço → $[(2,65m_{comp} \times 0,60m_{alt})] = 1,60m^2$

TOTAL DO ITEM = 1,60m²

04 - ESQUADRIAS

04.01 – Janela de correr para vidro em alumínio anodizado cor natural, linha 25, completa, incl. puxador com tranca, alizar, caixilho e contramarco, exclusive vidro

Sala 01 → $[(1,20m \times 1,20) \times 2,00_{und}] = 2,88m^2$

Sala 02 → $[(1,60m \times 1,20)] = 1,92m^2$

Sala 03 → $[(1,60m \times 1,20)] = 1,92m^2$

Banheiro Sala 01/02 → $[(0,60m \times 0,60)] = 0,36m^2$

TOTAL DO ITEM = 7,08m²

04.02 – Grade de ferro em barra chata, inclusive chumbamento m2 354,89

Patio → $[(0,90m_{comp} + 2,79m_{comp} + 3,72m_{comp} + 2,31m_{comp} + 0,96m_{comp} + 3,34m_{comp}) \times 1,70m_{alt}] = 23,83m^2$

TOTAL DO ITEM = 23,83m²

04.03 – Portão de ferro de abrir em barra chata, inclusive chumbamento

Patio → $(1,50m_{comp} \times 2,20m_{alt}) = 3,30m^2$

TOTAL DO ITEM = 3,30m²

04.04 – Porta de abrir tipo veneziana em alumínio anodizado, linha 25, completa, incl. puxador com tranca, caixilho, alizar e contramarco

Banheiro masculino → $[(0,60m \times 1,60m) \times 2_{und}] = 1,92m^2$

Banheiro feminino → $[(0,60m \times 1,60m) \times 2_{und}] = 1,92m^2$

TOTAL DO ITEM = 3,84m²

04.05 – Vidro fantasia mini-boreal, com 4 mm de espessura

Sala 01 → [(1,20m x 1,20) x 2,00_{und}] = 2,88m²

Sala 02 → [(1,60m x 1,20)] = 1,92m²

Sala 03 → [(1,60m x 1,20) = 1,92m²

Banheiro Sala 01/02 → [(0,60m x 0,60) = 0,36m²

TOTAL DO ITEM = 7,08m²

04.06 – KIT DE PORTA DE MADEIRA PARA PINTURA, SEMI-OCA (LEVE OU MÉDIA), PADRÃO MÉDIO, 80X210CM, ESPESSURA DE 3,5CM, ITENS INCLUSOS: DOBRADIÇAS, MONTAGEM E INSTALAÇÃO DO BATENTE, SEM FECHADURA - FORNECIMENTO E INSTALAÇÃO O. AF_12/2019

Banheiro Sala 01/02 → 3,00 und

Banheiro Sala 03 → 1,00 und

TOTAL DO ITEM = 4,00 und

04.07 – Fechadura com maçaneta tipo alavanca e chave comum para porta interna, ref. IMAB, STAN, ALIANÇA ou equivalente

Banheiro Sala 01/02 → 3,00 und

Banheiro Sala 03 → 1,00 und

TOTAL DO ITEM = 4,00 und

04.08 - Porta em vidro temperado 10mm, incolor, inclusive ferragens de fixação e instalação, exclusive puxador

Sala 05 2º PAV → (0,80m_{comp} x 2,10m_{alt}) = 1,68m²

TOTAL DO ITEM = 1,68m²

04.09 – PUXADOR DE MADEIRA PARA PORTA DE VIDRO TEMPERADO.FORNECIMENTO

Sala 05 2º PAV → 2,00 und

TOTAL DO ITEM = 2,00m²

04.10 – Recolocação de porta de vidro

Sala 03 → 1,00 und

TOTAL DO ITEM = 1,00 und

05 - TETOS E FORROS

05.01 – FORRO ESTRUTURADO MONOLITICO C/UMA CHAPA DE GESSO ACARTONADO, TIPO STANDARD NO SISTEMA DRYWALL,LARGURA 1200MM,ESP.12,5MM,,C/TRAT.JUNTAS P/UNIFORMIZACAO DA SUPERFICIE,SENDO APARAFUSADA EM ESTRUTURA DE ACO GALVANIZADO,SUSPENSA POR MEIO DE PENDURAS FIXADOS EM ESTRUTURA SUPERIOR,C/O PERIMETRO EXECUTADO C/CANTONEIRAS ACO GALVANIZADO.FORNECIMENTO E COLOCACAO

Banheiro Sala 01/02 → 3,80m²

Trocador banheiro Sala 01/02 → 3,14m²

Banheiro Sala 03 → 3,32m²

Sala 03 → 24,92m²

TOTAL DO ITEM = 35,18m²

06 - REVESTIMENTO

06.01 – Chapisco de argamassa de cimento e areia média ou grossa lavada, no traço 1:3, espessura 5 mm

Área interna

Bancada Banheiro Sala 01/02 → $[(0,50m_{comp} + 0,50m_{comp} + 0,15m_{comp}) \times 0,90m_{alt}] = 1,03m^2$

Bancada Hall Banheiro Sala 01/02 → $[(0,50m_{comp} + 0,50m_{comp} + 0,15m_{comp}) \times 0,90m_{alt}] = 1,03m^2$

Bancada Banheiro Sala 03 → $[(0,50m_{comp} + 0,50m_{comp} + 0,15m_{comp}) \times 0,90m_{alt}] = 1,03m^2$

Banheiro Sala 01/02 → $[(1,94m_{comp} + 1,94m_{comp} + 3,95m_{comp} + 3,95m_{comp}) \times 2,77m_{alt}] - \{[(0,80m_{comp} \times 2,10m_{alt}) \times 3_{und}] - [(0,80m_{comp} \times 0,60m_{alt})]\} = 27,11m^2 \times 2_{lados} = 54,22m^2$

Banheiro Sala 03 → $[(2,23m + 1,65m) \times 2,90m] - [(0,80m_{comp} \times 2,10m_{alt})] = 9,57m^2 \times 2_{lados} = 19,14m^2$

Mureta → $[(3,73m \times 0,50m) + (2,24m \times 0,50) + (0,89m \times 0,50m)] = 3,43m^2 \times 2_{lados} = 6,86m^2$

SUBTOTAL DO ITEM = 83,31m²

Fachada Externa dos fundos → $\{[(15,11m_{comp} \times 6,40m_{alt}) - [(2,00m_{comp} \times 1,20m_{alt}) \times 6_{und}] - [(1,60m_{comp} \times 1,20m_{alt}) \times 2_{und}] - [(0,80m_{comp} \times 0,60m_{alt})] - [(0,98m_{comp} \times 0,55m_{alt})]\} = 77,44m^2$

Beiral → $\{[(13,36m_{comp} \times 0,50m_{alt}) \times 2_{lados}] = 13,36m^2$

Sala 01 → $[(6,45m_{comp} + 2,00m_{comp} + 5,95m_{comp} + 6,45m_{comp}) \times 1,05m_{alt}] - [(0,80m_{comp} \times 1,05m_{alt})] = 21,05m^2$

Sala 02 → $[(6,45m_{comp} + 2,00m_{comp} + 5,95m_{comp} + 6,45m_{comp}) \times 1,05m_{alt}] - [(0,80m_{comp} \times 1,05m_{alt})] = 21,05m^2$

Sala 03 → $\{[(4,21m_{comp} + 4,21m_{comp} + 6,85m_{comp} + 6,85m_{comp}) \times 1,05m_{alt}] - [(0,80m_{comp} \times 1,05m_{alt})]\} = 22,38m^2$

Sala 04 → $\{[(6,15m_{comp} + 6,15m_{comp} + 5,95m_{comp} + 5,95m_{comp}) \times 1,05m_{alt}] - [(0,80m_{comp} \times 1,05m_{alt})]\} = 24,57m^2$

Banheiro Masculino → $\{[(3,22m_{comp} + 3,22m_{comp} + 5,95m_{comp} + 5,95m_{comp}) \times 2,90m_{alt}] + [(1,18m_{comp} + 1,18m_{comp} + 1,18m_{comp} + 1,18m_{comp} + 1,18m_{comp} + 2,21m_{comp} + 1,06m_{comp} + 1,08m_{comp} + 1,08m_{comp}) \times 1,70m_{alt}] - [(0,80m_{comp} \times 2,10m_{alt}) + (0,98m_{comp} \times 0,55m_{alt}) + (0,98m_{comp} \times 0,55m_{alt})]\} = 51,68m^2$

Banheiro Feminino → $\{[(3,80m_{comp} + 3,80m_{comp} + 4,86m_{comp} + 4,86m_{comp}) \times 2,90m_{alt}] + [(1,41m_{comp} + 1,41m_{comp} + 1,41m_{comp} + 1,41m_{comp} + 1,41m_{comp} + 1,90m_{comp} + 0,93m_{comp} + 0,93m_{comp} + 1,08m_{comp}) \times 1,70m_{alt}] - [(0,80m_{comp} \times 2,10m_{alt}) + (0,98m_{comp} \times 0,55m_{alt}) + (0,98m_{comp} \times 0,55m_{alt})]\} = 67,68m^2$

SUBTOTAL DO ITEM = 299,21 m²

TOTAL DO ITEM = 83,31m² + 299,21m² = 385,52m²

06.02 – Reboco tipo paulista de argamassa de cimento, cal hidratada CH1 e areia

Área externa

Fachada Externa dos fundos $\rightarrow \{[(15,11m_{comp} \times 6,40m_{alt}) - [(2,00m_{comp} \times 1,20m_{alt}) \times 6_{und}] - [(1,60m_{comp} \times 1,20m_{alt}) \times 2_{und}] - [(0,80m_{comp} \times 0,60m_{alt})] - [(0,98m_{comp} \times 0,55m_{alt})]\}$
 $= 77,44m^2$

Beiral $\rightarrow \{[(13,36m_{comp} \times 0,50m_{alt}) \times 2_{lados}] = 13,36m^3$

SUBTOTAL DO ITEM = 90,08m²

Sala 01 $\rightarrow \{[(5,95m_{comp} + 6,45m_{comp} + 2,00m_{comp} + 0,90m_{comp} + 0,15m_{comp} + 3,95m_{comp} + 5,40m_{comp}) \times 1,72m_{alt}] - [(2,00m_{comp} \times 1,20m_{alt})] - [(1,60m_{comp} \times 1,20m_{alt})] - [(0,80m_{comp} \times 1,05m_{alt}) \times 2_{und}]\} = 36,66m^2$

Sala 02 $\rightarrow \{[(5,95m_{comp} + 6,50m_{comp} + 2,00m_{comp} + 0,90m_{comp} + 0,15m_{comp} + 3,95m_{comp} + 5,45m_{comp}) \times 1,72m_{alt}] - [(2,00m_{comp} \times 1,20m_{alt})] - [(1,60m_{comp} \times 1,20m_{alt})] - [(0,80m_{comp} \times 1,05m_{alt}) \times 2_{und}]\} = 36,83m^2$

Sala 03 $\rightarrow \{[(6,85m_{comp} + 1,84m_{comp} + 1,50m_{comp} + 0,15m_{comp} + 2,40m_{comp} + 5,20m_{comp} + 4,21m_{comp}) \times 1,90] - [(0,80m_{comp} \times 1,05m_{alt}) \times 2_{und}] - [(1,20m_{comp} \times 1,20m_{alt}) \times 2_{und}]\} = 36,42m^2$

Sala 04 $\rightarrow \{[(5,95m_{comp} + 6,15m_{comp} + 5,95m_{comp} + 6,15m_{comp}) \times 1,85m_{alt}] - [(1,00m_{comp} \times 1,72m_{alt}) \times 3_{und}] - [(0,80m_{comp} \times 1,05m_{alt})] - [(0,98m \times 0,50m) \times 3_{und}]\} = 37,30m^2$

SUBTOTAL DO ITEM = 147,21m²

TOTAL DO ITEM = 90,08m² + 147,21m² = 237,29m²

06.03 – Emboço de argamassa de cimento, cal hidratada CH1 e areia média ou grossa lavada no traço 1:0.5:6, espessura 20 mm

Banheiro Sala 01/02_{interno} $\rightarrow [(1,94m_{comp} + 1,94m_{comp} + 1,94m_{comp} + 1,94m_{comp} + 2,00m_{comp} + 2,00m_{comp} + 1,67m_{comp} + 1,67m_{comp}) \times 2,77m_{alt}] - \{[(0,80m_{comp} \times 2,10m_{alt}) \times 3_{und}] - [(0,80m_{comp} \times 0,60m_{alt})]\} = 36,31m^2$

Banheiro Sala 03_{interno} $\rightarrow [(2,23m_{comp} + 1,65m_{alt} + 2,23m_{comp} + 1,65m_{alt}) \times 2,90m] - [(0,80m_{comp} \times 2,10m_{alt})] - [(0,80m_{comp} \times 0,60m_{alt})] = 20,34m^2$

$$\text{Bancada Banheiro Sala 01/02} \rightarrow [(0,50\text{m}_{\text{comp}} + 0,50\text{m}_{\text{comp}} + 0,15\text{m}_{\text{comp}}) \times 0,90\text{m}_{\text{alt}}] = 1,03\text{m}^2$$

$$\text{Bancada Hall Banheiro Sala 01/02} \rightarrow [(0,50\text{m}_{\text{comp}} + 0,50\text{m}_{\text{comp}} + 0,15\text{m}_{\text{comp}}) \times 0,90\text{m}_{\text{alt}}] = 1,03\text{m}^2$$

$$\text{Bancada Hall Banheiro Sala 03} \rightarrow [(0,50\text{m}_{\text{comp}} + 0,50\text{m}_{\text{comp}} + 0,15\text{m}_{\text{comp}}) \times 0,90\text{m}_{\text{alt}}] = 1,03\text{m}^2$$

$$\text{Mureta} \rightarrow [(3,73\text{m} \times 0,50\text{m}) + (2,24\text{m} \times 0,50) + (0,90\text{m} \times 0,50\text{m})] = 3,43\text{m}^2 \times 2\text{lad}os = 6,87\text{m}^2$$

$$\text{Sala 01} \rightarrow [(6,45\text{m}_{\text{comp}} + 2,00\text{m}_{\text{comp}} + 5,95\text{m}_{\text{comp}} + 6,45\text{m}_{\text{comp}}) \times 1,05\text{m}_{\text{alt}}] - [(0,80\text{m}_{\text{comp}} \times 1,05\text{m}_{\text{alt}})] = 21,05\text{m}^2$$

$$\text{Sala 02} \rightarrow [(6,45\text{m}_{\text{comp}} + 2,00\text{m}_{\text{comp}} + 5,95\text{m}_{\text{comp}} + 6,45\text{m}_{\text{comp}}) \times 1,05\text{m}_{\text{alt}}] - [(0,80\text{m}_{\text{comp}} \times 1,05\text{m}_{\text{alt}})] = 21,05\text{m}^2$$

$$\text{Sala 03} \rightarrow \{[(4,21\text{m}_{\text{comp}} + 4,21\text{m}_{\text{comp}} + 6,85\text{m}_{\text{comp}} + 6,85\text{m}_{\text{comp}}) \times 1,05\text{m}_{\text{alt}}] - [(0,80\text{m}_{\text{comp}} \times 1,05\text{m}_{\text{alt}})]\} = 22,38\text{m}^2$$

$$\text{Sala 04} \rightarrow \{[(6,15\text{m}_{\text{comp}} + 6,15\text{m}_{\text{comp}} + 5,95\text{m}_{\text{comp}} + 5,95\text{m}_{\text{comp}}) \times 1,05\text{m}_{\text{alt}}] - [(0,80\text{m}_{\text{comp}} \times 1,05\text{m}_{\text{alt}})]\} = 24,57\text{m}^2$$

$$\begin{aligned} \text{Banheiro Masculino} \rightarrow & \{[(3,22\text{m}_{\text{comp}} + 3,22\text{m}_{\text{comp}} + 5,95\text{m}_{\text{comp}} + 5,95\text{m}_{\text{comp}}) \times 2,90\text{m}_{\text{alt}}] + \\ & [(1,18\text{m}_{\text{comp}} + 1,18\text{m}_{\text{comp}} + 1,18\text{m}_{\text{comp}} + 1,18\text{m}_{\text{comp}} + 1,18\text{m}_{\text{comp}} + 2,21\text{m}_{\text{comp}} + 1,06\text{m}_{\text{comp}} \\ & + 1,08\text{m}_{\text{comp}} + 1,08\text{m}_{\text{comp}}) \times 1,70\text{m}_{\text{alt}}] - [(0,80\text{m}_{\text{comp}} \times 2,10\text{m}_{\text{alt}}) + (0,98\text{m}_{\text{comp}} \times 0,55\text{m}_{\text{alt}}) \\ & + (0,98\text{m}_{\text{comp}} \times 0,55\text{m}_{\text{alt}})]\} = 51,68\text{m}^2 \end{aligned}$$

$$\begin{aligned} \text{Banheiro Feminino} \rightarrow & \{[(3,80\text{m}_{\text{comp}} + 3,80\text{m}_{\text{comp}} + 4,86\text{m}_{\text{comp}} + 4,86\text{m}_{\text{comp}}) \times 2,90\text{m}_{\text{alt}}] + \\ & [(1,41\text{m}_{\text{comp}} + 1,41\text{m}_{\text{comp}} + 1,41\text{m}_{\text{comp}} + 1,41\text{m}_{\text{comp}} + 1,41\text{m}_{\text{comp}} + 1,90\text{m}_{\text{comp}} + \\ & 0,93\text{m}_{\text{comp}} + 0,93\text{m}_{\text{comp}} + 1,08\text{m}_{\text{comp}}) \times 1,70\text{m}_{\text{alt}}] - [(0,80\text{m}_{\text{comp}} \times 2,10\text{m}_{\text{alt}}) + (0,98\text{m}_{\text{comp}} \times \\ & 0,55\text{m}_{\text{alt}}) + (0,98\text{m}_{\text{comp}} \times 0,55\text{m}_{\text{alt}})]\} = 67,68\text{m}^2 \end{aligned}$$

TOTAL DO ITEM = 275,02m²

06.04 – Azulejo branco 15 x 15 cm, juntas a prumo, assentado com argamassa de cimento colante, inclusive rejuntamento com cimento branco, marcas de referência Eliane, Cecrisa ou Portobello

$$\begin{aligned} \text{Banheiro Masculino} \rightarrow & \{[(3,22\text{m}_{\text{comp}} + 3,22\text{m}_{\text{comp}} + 5,95\text{m}_{\text{comp}} + 5,95\text{m}_{\text{comp}}) \times 2,90\text{m}_{\text{alt}}] + \\ & [(1,18\text{m}_{\text{comp}} + 1,18\text{m}_{\text{comp}} + 1,18\text{m}_{\text{comp}} + 1,18\text{m}_{\text{comp}} + 1,18\text{m}_{\text{comp}} + 2,21\text{m}_{\text{comp}} + 1,06\text{m}_{\text{comp}} \end{aligned}$$

$$+ 1,08m_{\text{comp}} + 1,08m_{\text{comp}}) \times 1,70m_{\text{alt}}] - [(0,80m_{\text{comp}} \times 2,10m_{\text{alt}}) + (0,98m_{\text{comp}} \times 0,55m_{\text{alt}}) + (0,98m_{\text{comp}} \times 0,55m_{\text{alt}})] = 51,68m^2$$

$$\text{Banheiro Feminino} \rightarrow \{[(3,80m_{\text{comp}} + 3,80m_{\text{comp}} + 4,86m_{\text{comp}} + 4,86m_{\text{comp}}) \times 2,90m_{\text{alt}}] + [(1,41m_{\text{comp}} + 1,41m_{\text{comp}} + 1,41m_{\text{comp}} + 1,41m_{\text{comp}} + 1,41m_{\text{comp}} + 1,90m_{\text{comp}} + 0,93m_{\text{comp}} + 0,93m_{\text{comp}} + 1,08m_{\text{comp}}) \times 1,70m_{\text{alt}}] - [(0,80m_{\text{comp}} \times 2,10m_{\text{alt}}) + (0,98m_{\text{comp}} \times 0,55m_{\text{alt}}) + (0,98m_{\text{comp}} \times 0,55m_{\text{alt}})]\} = 67,68m^2$$

$$\text{Banheiro Sala 01/02} \rightarrow [(1,94m_{\text{comp}} + 1,94m_{\text{comp}} + 1,94m_{\text{comp}} + 1,94m_{\text{comp}} + 2,00m_{\text{comp}} + 2,00m_{\text{comp}} + 1,67m_{\text{comp}} + 1,67m_{\text{comp}}) \times 2,77m_{\text{alt}}] - \{[(0,80m_{\text{comp}} \times 2,10m_{\text{alt}}) \times 3_{\text{und}}] - [(0,80m_{\text{comp}} \times 0,60m_{\text{alt}})]\} = 36,31m^2$$

$$\text{Banheiro Sala 03} \rightarrow [(2,23m_{\text{comp}} + 1,65m_{\text{alt}} + 2,23m_{\text{comp}} + 1,65m_{\text{alt}}) \times 2,90m] - [(0,80m_{\text{comp}} \times 2,10m_{\text{alt}})] - [(0,80m_{\text{comp}} \times 0,60m_{\text{alt}})] = 20,34m^2$$

$$\text{Bancada Banheiro Sala 01/02} \rightarrow [(0,50m_{\text{comp}} + 0,50m_{\text{comp}} + 0,15m_{\text{comp}}) \times 0,90m_{\text{alt}}] = 1,03m^2$$

$$\text{Bancada Hall Banheiro Sala 01/02} \rightarrow [(0,50m_{\text{comp}} + 0,50m_{\text{comp}} + 0,15m_{\text{comp}}) \times 0,90m_{\text{alt}}] = 1,03m^2$$

$$\text{Bancada Hall Banheiro Sala 03} \rightarrow [(0,50m_{\text{comp}} + 0,50m_{\text{comp}} + 0,15m_{\text{comp}}) \times 0,90m_{\text{alt}}] = 1,03m^2$$

$$\text{Mureta} \rightarrow [(3,73m \times 0,50m) + (2,24m \times 0,50) + (0,90m \times 0,50m)] = 3,43m^2 \times 2_{\text{lad}} = 6,87m^2$$

$$\text{Sala 04} \rightarrow \{[(6,15m_{\text{comp}} + 6,15m_{\text{comp}} + 5,95m_{\text{comp}} + 5,95m_{\text{comp}}) \times 1,05m_{\text{alt}}] - [(0,80m_{\text{comp}} \times 1,05m_{\text{alt}})]\} = 24,57m^2$$

$$\text{Sala 01} \rightarrow [(6,45m_{\text{comp}} + 2,00m_{\text{comp}} + 5,95m_{\text{comp}} + 6,45m_{\text{comp}}) \times 1,05m_{\text{alt}}] - [(0,80m_{\text{comp}} \times 1,05m_{\text{alt}})] = 21,05m^2$$

$$\text{Sala 02} \rightarrow [(6,45m_{\text{comp}} + 2,00m_{\text{comp}} + 5,95m_{\text{comp}} + 6,45m_{\text{comp}}) \times 1,05m_{\text{alt}}] - [(0,80m_{\text{comp}} \times 1,05m_{\text{alt}})] = 21,05m^2$$

TOTAL DO ITEM = 319,96m²

06.05 - Peitoril de granito cinza polido, 15 cm, esp. 3cm m 85,07

Sala 01 → 1,60m

Sala 02 → 1,60m

Sala 03 → 1,20m + 1,20m = 2,40

Banheiro Sala 01/02 → 0,80m

Banheiro Sala 03 → 0,80m

TOTAL DO ITEM = 7,20 m

07 - INSTALAÇÕES HIDROSSANITÁRIAS

07.01 – Ponto de água fria (lavatório, tanque, pia de cozinha, etc...)

Banheiro sala 03 → 3,00 und

Banheiro Sala 01/02 → 3,00 und

Banheiro Masculino → 3,00 und

Banheiro Feminino → 4,00 und

Tanque área externa → 1,00 und

TOTAL DO ITEM = 14,00 und

07.02 – Ponto com registro de pressão (chuveiro, caixa de descarga, etc...)

Banheiro sala 03 → 1,00 und

Banheiro Sala 01/02 → 1,00 und

TOTAL DO ITEM = 2,00 und

07.03 – Ponto para esgoto primário (vaso sanitário)

Banheiro sala 03 → 1,00 und

Banheiro Sala 01/02 → 1,00 und

TOTAL DO ITEM = 2,00 und

07.04 – Ponto para esgoto secundário (pia, lavatório, mictório, tanque, bidê, etc...)

Banheiro sala 03 → 1,00 und

Banheiro Sala 01/02 → 1,00 und

Banheiro Feminino → 1,00 und

Área Externa → 1,00 und

TOTAL DO ITEM = 4,00 und

07.05 – Ponto para caixa sifonada, inclusive caixa sifonada pvc 150x150x50mm com grelha em pvc

Banheiro sala 03 → 1,00 und

Banheiro Sala 01/02 → 1,00 und

Pátio → 1,00 und

TOTAL DO ITEM = 3,00 und

07.06 – Tubo de PVC rígido soldável branco, para esgoto, diâmetro 100mm (4"), inclusive conexões

Tubulação de esgoto → 30,00 m

Tubulação de drenagem → 15,00 m

TOTAL DO ITEM = 45,00 m

07.07 –Caixas de inspeção de alv. blocos concreto 9x19x39cm, dim, 60x60cm e Hmáx = 1m, com tampa de conc. esp. 5cm, lastro de conc. esp. 10cm, revest intern. c/ chapisco e reboco impermeabilizado, incl. escavação, reaterro e enchimento

Pátio → 1,00 m

Área externa → 2,00 m

TOTAL DO ITEM = 3,00 und

07.08 – CAIXA COM GRELHA RETANGULAR DE FERRO FUNDIDO, EM ALVENARIA COM TIJOLOS CERÂMICOS MACIÇOS, DIMENSÕES INTERNAS: 0,20 X 1,00 X 0,4 M. AF_08/202

Pátio → 1,00 m

TOTAL DO ITEM = 1,00 und

08 - INSTALAÇÕES ELÉTRICAS

08.01 – Ponto padrão de luz no teto - considerando eletroduto PVC rígido de 3/4" inclusive conexões (4.5m), fio isolado PVC de 2.5mm² (16.2m) e caixa PVC 4x4" (1 und)

Sala 03 → 3,00 und

Banheiro sala 03 → 1,00 und

Banheiro sala 01/02 → 1,00 und

Hall banheiro sala 01/02 → 1,00 und

TOTAL DO ITEM = 6,00 und

08.02 – Ponto padrão de interruptor de 1 tecla intermediário - considerando eletroduto PVC rígido de 3/4" inclusive conexões (3.3m), fio isolado PVC de 2.5mm² (15.8m) e caixa PVC 4x2" (1 und)

Sala 03 → 2,00 und

Banheiro sala 03 → 1,00 und

Banheiro sala 01/02 → 1,00 und

TOTAL DO ITEM = 4,00 und

08.03 – Ponto padrão de tomada 2 pólos mais terra - considerando eletroduto PVC rígido de 3/4" inclusive conexões (5.0m), fio isolado PVC de 2.5mm² (16.5m) e caixa pvc 4x2" (1 und)

Sala 03 → 2,00 und

Sala 02 → 1,00 und

Sala 01 → 1,00 und

Hall banheiro sala 01/02 → 1,00 und

TOTAL DO ITEM = 5,00 und

08.04 – Ponto padrão de interruptor de 1 tecla paralelo - considerando eletroduto PVC rígido de 3/4" inclusive conexões (8.5m), fio isolado PVC de 2.5mm² (28.8m) e caixa PVC 4x2" (1 und)

Hall banheiro sala 01/02 → 2,00 und

TOTAL DO ITEM = 2,00 und

08.05 – Mini-Disjuntor monopolar 10 A, curva C - 5KA 220/127VCA (NBR IEC 60947-2), Ref. Siemens, GE, Schneider ou equivalente

QDC Sala 03 → 2,00 und

TOTAL DO ITEM = 2,00 und

08.06 – Mini-Disjuntor bipolar 50 A, curva C - 5KA 220/127VCA (NBR IEC 60947-2), Ref. Siemens, GE, Schneider ou equivalente

QDC Sala 03 → 2,00 und

TOTAL DO ITEM = 2,00 und

08.07 – Mini-Disjuntor bipolar 63 A, curva C - 5KA 220/127VCA (NBR IEC 60947-2), Ref. Siemens, GE, Schneider ou equivalente

QDC Sala 03 → 1,00 und

TOTAL DO ITEM = 1,00 und

08.08 – Quadro de distribuição de energia em PVC, de embutir, com 12 divisões modulares com barramento und 150306

Sala 03 → 1,00 und

TOTAL DO ITEM = 1,00 und

08.09 – Fio ou cabo de cobre termoplástico, com isolamento para 750V, seção de 16.0 mm² m 25,52

Ligação do quadro de medição (MED) existente ao novo quadro de distribuição (QDC)

→ $33,50m_{\text{fase}} + 33,50m_{\text{fase}} + 33,50m_{\text{terra}} = 100,50m$

TOTAL DO ITEM = 100,50 m

08.10 – Eletroduto flexível corrugado 3/4" , marca de referência TIGRE

Ligação do quadro de medição (MED) existente ao novo quadro de distribuição (QDC)

→ 11,00m

TOTAL DO ITEM = 11,00m

08.11 – Eletroduto aparente de PVC rígido roscável diâmetro 3/4", inclusive abraçadeira de fixação

Ligação do quadro de medição (MED) existente ao novo quadro de distribuição (QDC)

→ 33,05m

TOTAL DO ITEM = 33,05m

09 – APARELHOS HIDROSSANITÁRIOS

09.01 – Cuba louça de embutir redonda, 30cm, L-41, completa, marcas de referência Deca, Celite ou Ideal Standard, incl. válvula e sifão, exclusive torneira

Banheiro Sala 03 → 1,00 und

Banheiro Sala 01/02 → 1,00 und

TOTAL DO ITEM = 2,00 und

09.02 – Vaso sanitário com caixa de descarga acoplada, linha infantil, 6 Lt, branca, CELITE ou similar

Banheiro Sala 03 → 1,00 und

Banheiro Sala 01/02 → 1,00 und

TOTAL DO ITEM = 2,00 und

09.03 – Bacia sifonada de louça branca com caixa acoplada, inclusive acessórios

Banheiro Masculino → 3,00 und

Banheiro Feminino → 4,00 und

TOTAL DO ITEM = 7,00 und

09.04 – Bancada de mármore esp. 3cm m2

Hall Sala 01/02 → (1,05m x 0,50m) = 0,525m²

Banheiro Sala 01/02 → (0,95m x 0,50m) = 0,475m²

Banheiro Sala 03 → (0,70m x 0,50) = 0,35m²

TOTAL DO ITEM = 1,35m²

09.05 – Registro de gaveta bruto diam. 25mm (1") und

Sala 01/02 → 1,00 und

Sala 03 → 1,00 und

TOTAL DO ITEM = 2,00 und

09.06 – Torneira cromada para lavatório, DECA 1173C (Decamatic Eco) ou similar

Sala 01/02 → 1,00 und

Sala 03 → 1,00 und

Bebedouro pátio → 5,00 und

TOTAL DO ITEM = 7,00 und

09.07 – Tanque de mármore sintético com um bojo, inclusive válvula e sifão em PVC

Área de serviço → 1,00 und

TOTAL DO ITEM = 1,00 und

09.08 – Torneira para tanque, marcas de referência Fabrimar, Deca ou Docol.

Área de serviço → 1,00 und

TOTAL DO ITEM = 1,00 und

09.09 – Ducha manual Acqua jet , linha Aquarius, com registro ref.C 2195, marcas de referência Fabrimar, Deca ou Docol

Sala 01/02 → 1,00 und

Sala 03 → 1,00 und

TOTAL DO ITEM = 2,00 und

10.0 - APARELHOS ELÉTRICOS

10.01 – Tomada padrão brasileiro linha branca, NBR 14136 2 polos + terra 10A/250V, com placa 4x2"

Sala 03 → 2,00 und

Sala 02 → 1,00 und

Sala 01 → 1,00 und

Hall banheiro sala 01/02 → 1,00 und

TOTAL DO ITEM = 5,00 und

10.02 – Interruptor de uma tecla simples 10A/250V, com placa 4x2"

Conforme projeto elétrico

TOTAL DO ITEM = 28,00 und

10.03 – Luminaria led plafon redondo de sobrepor bivolt 12/13 w, d= *17* cm

Sala 03 → 3,00 und

Banheiro sala 03 → 1,00 und

Banheiro sala 01/02 → 1,00 und

Hall banheiro sala 01/02 → 1,00 und

TOTAL DO ITEM = 6,00 und

10.04 – Interruptor de uma tecla paralelo 10A/250V, com placa 4x2"

Hall banheiro sala 01/02 → 2,00 und

TOTAL DO ITEM = 2,00 und

11 - PISOS

11.01 – 130110 Lastro regularizado de concreto não estrutural, espessura de 8 cm

Banheiro Sala 01/02 → 3,80m²

Trocador banheiro Sala 01/02 → 3,14m²

Banheiro Sala 03 → 3,32m²

Sala 03 → 24,92m²

Pátio → (4,10m x 6,31m) = 25,63m²

Circulação frente ao banheiro masc. → (3,22m x 2,70m) = 8,70m²

Circulação → 2,52m²

Banheiro Masculino → (3,22m x 5,95m) = 19,16m²

Rampa → 4,98m²

Área externa ao lado da área de serviço → [(2,90m x 2,67m)] = 7,74m²

TOTAL DO ITEM = 103,91m²

11.02 – 130104 Regularização de base p/ revestimento cerâmico, com argamassa de cimento e areia no traço 1:5, espessura 5cm

Banheiro Sala 01/02 → 3,80m²

Trocador banheiro Sala 01/02 → 3,14m²

Banheiro Sala 03 → 3,32m²

Sala 03 → 24,92m²

Pátio → (4,10m x 6,31m) = 25,63m²

Circulação frente ao banheiro masc. → (3,22m x 2,70m) = 8,70m²

Circulação → 2,52m²

Banheiro Masculino → (3,22m x 5,95m) = 19,16m²

Rampa → 4,98m²

TOTAL DO ITEM = 96,17m²

11.03 – Piso cerâmico esmaltado, PEI 5, acabamento semibrilho, dim. 45x45cm, ref. de cor CARGO PLUS WHITE Eliane/equiv. assentado com argamassa de cimento colante, inclusive rejuntamento

Banheiro Sala 01/02 → 3,80m²

Trocador banheiro Sala 01/02 → 3,14m²

Banheiro Sala 03 → 3,32m²

Sala 03 → 24,92m²

Pátio → (4,10m x 6,31m) = 25,63m²

Circulação frente ao banheiro masc. → (3,22m x 2,70m) = 8,70m²

Circulação → 2,52m²

Banheiro Masculino → (3,22m x 5,95m) = 19,16m²

Rampa → 4,98m²

TOTAL DO ITEM = 96,17m²

11.04 – Lastro de brita 3 e 4, apiloado manualmente

Área externa ao lado da área de serviço → [(2,90m x 2,67m) x 0,10m_{alt}] = 0,77m³

TOTAL DO ITEM = 0,77m³

11.05 – Piso de cimentado camurçado executado com argamassa de cimento e areia no traço 1:3, esp. 3.0cm

Área externa (acesso a quadra) → (2,67m_{larg} x 4,50m_{comp}) = 12,01m²

Área externa ao lado da área de serviço → [(2,90m x 2,67m)] = 7,74m²

TOTAL DO ITEM = 19,75m²

11.06 – Rejuntamento empregando argamassa para rejunte, esp. 5mm

1º Pavimento

Salas de aula A → 42,84m²
Salas de aula B → 37,13m²
Salas de aula C → 47,60m² +
Salas de aula D → 36,00m²
Salas dos professores → 38,07m²
Salas de aula 4 → 36,59m²
Dispensa I → 11,34m²
Dispensa II → 4,03m²
Dispensa III → 8,45m²
Dispensa IIII → 4,40m²
Coordenação → 8,05m²
Banheiro coord. → 2,65m²
Secretaria → 16,80m²
Cozinha → 18,74m²
Área de serviço → 11,76m²

SUBTOTAL DO ITEM = 324,45m²

2º Pavimento

Salas de aula E → 49,50m²
Salas de aula 5 → 36,89m²
Salas de aula F → 48,49m² +
Salas de aula G → 37,84m² +
Salas de aula H → 38,97m² +
Salas de aula I → 28,84m²
Direção → 14,26m²
Banheiro Direção → 4,82m²
Dispensa → 15,76m²
Teto Circulação 2 pav → 74,41m²

SUBTOTAL DO ITEM = 349,78m²

TOTAL DO ITEM = 324,45m² + 349,78m² = 674,23m²

11.07 – Soleira de granito esp. 2 cm e largura de 15 cm

Rampa → 1,25m

Banheiro sala 03 → 0,80m

Banheiro sala 01/02 → 0,80m

Hall Banheiro sala 01/02 → 0,80m + 0,80m

TOTAL DO ITEM = 4,45 m

12.0 – PINTURA

12.01 – Emassamento de paredes e forros, com duas demãos de massa à base de PVA, marcas de referência Suvinil, Coral ou Metalatex

PAREDES

Banheiro Sala 01/02_{externo} → [(1,94m_{comp} + 3,95m_{comp} + 3,95m_{comp}) x 1,72m_{alt}] – [(0,80m_{comp} x 1,05m_{alt}) x 2_{und}] = 15,24m²

Banheiro Sala 03_{externo} → [(2,23m + 1,65m) x 1,85m] – [(0,80m_{comp} x 1,05m_{alt})] = 6,34m²

SUBTOTAL DO ITEM = 28,45m²

FORROS

Banheiro Sala 01/02 → 3,80m²

Trocador banheiro Sala 01/02 → 3,14m²

Banheiro Sala 03 → 3,32m²

Sala 01 → 34,23m²

Sala 02 → 34,53m²

Sala 03 → 24,92m²

SUBTOTAL DO ITEM = 103,94m²

TOTAL DO ITEM = 28,45m² + 103,94m² = 132,39m³

12.02 –Emassamento de paredes e forros, com duas demãos de massa acrílica, marcas de referência Suvinil, Coral ou Metalatex

Área externa sobre reboco

Fachada Externa dos fundos $\rightarrow \{[(15,11m_{comp} \times 6,40m_{alt}) - [(2,00m_{comp} \times 1,20m_{alt}) \times 6_{und}] - [(1,60m_{comp} \times 1,20m_{alt}) \times 2_{und}] - [(0,80m_{comp} \times 0,60m_{alt})] - [(0,98m_{comp} \times 0,55m_{alt})]\}$
 $= 77,44m^2$

Beiral $\rightarrow \{[(13,36m_{comp} \times 0,50m_{alt}) \times 2_{lados}] = 13,36m^3$

SUBTOTAL DO ITEM = 90,08m²

Área externa após lixamento

Fachada Externa dos fundos 1 pav $\rightarrow [(16,41m_{comp} \times 2,90m_{alt})] - [(1,62m_{comp} \times 1,12m_{alt})] - [(1,00m_{comp} \times 1,47m_{alt}) \times 2_{und}] - [(1,00m_{comp} \times 0,60m_{alt})] = 42,24$

Parede externa/área de serviço $\rightarrow [(4,96m_{comp} \times 2,90m_{alt})] - [(0,98m_{comp} \times 0,55m_{alt})] - [(0,80m_{comp} \times 2,10m_{alt})] = 12,16m^2$

Fachada Externa dos fundos 2 pav $\rightarrow [(21,37m_{comp} \times 2,95m_{alt})] - [(2,00m_{comp} \times 1,20m_{alt}) \times 6_{und}] = 48,64m^2$

Área de serviço externo $\rightarrow [(4,67m_{comp} \times 2,80m_{alt})] + [(2,67m_{comp} + 2,67m_{comp}) \times 1,50m_{alt}] = 21,08m^2$

Corredor de acesso ao pátio $\rightarrow [(6,25m_{comp} \times 2,90m_{alt}) \times 2_{lados}] = 36,25m^2$

SUBTOTAL DO ITEM = 160,37m²

TOTAL DO ITEM = 90,08m² + 160,37m² = 250,45m²

12.03 – Pintura com tinta látex PVA, marcas de referência Suvinil, Coral ou Metalatex, inclusive selador em paredes e forros, a três demãos

Paredes 1º Pavimento

Sala de aula A $\rightarrow [(7,14m_{comp} + 5,95m_{comp} + 7,14m_{comp} + 5,95m_{comp}) \times 1,85m_{alt}] - [(1,62m_{comp} \times 1,12m_{alt}) \times 2_{und}] - [(0,80m_{comp} \times 1,05m_{alt})] = 43,96m^2$

Sala de aula B $\rightarrow [(6,24m_{comp} + 5,95m_{comp} + 6,24m_{comp} + 5,95m_{comp}) \times 1,85m_{alt}] - [(1,00m_{comp} \times 1,47m_{alt}) \times 2_{und}] - [(0,80m_{comp} \times 1,05m_{alt})] = 41,32m^2$

Sala de aula C $\rightarrow [(8,00m_{comp} + 5,95m_{comp} + 8,00m_{comp} + 5,95m_{comp}) \times 1,85m_{alt}] - [(1,17m_{comp} \times 1,72m_{alt}) \times 4_{und}] - [(0,95m_{comp} \times 0,50m_{alt}) \times 3_{und}] - [(0,80m_{comp} \times 1,05m_{alt})] = 41,30m^2$

Despensa I $\rightarrow [(2,65m_{comp} + 4,28m_{comp} + 2,65m_{comp} + 4,28m_{comp}) \times 1,85m_{alt}] - [(1,24m_{comp} \times 1,72m_{alt})] - [(0,80m_{comp} \times 1,05m_{alt})] = 22,67m^2$

Despensa II $\rightarrow [(2,65m_{comp} + 1,52m_{comp} + 2,65m_{comp} + 1,52m_{comp}) \times 1,85m_{alt}] - [(0,98m_{comp} \times 0,48m_{alt})] - [(0,70m_{comp} \times 1,05m_{alt})] = 14,22m^2$

$$\text{coordenação} \rightarrow [(2,30\text{m}_{\text{comp}} + 3,50\text{m}_{\text{comp}} + 2,30\text{m}_{\text{comp}} + 3,50\text{m}_{\text{comp}}) \times 1,85\text{m}_{\text{alt}}] - [(1,03\text{m}_{\text{comp}} \times 1,10\text{m}_{\text{alt}})] - [(0,80\text{m}_{\text{comp}} \times 1,05\text{m}_{\text{alt}}) - (0,64\text{m}_{\text{comp}} \times 1,05\text{m}_{\text{alt}})] = 18,82\text{m}^2$$

$$\text{Secretaria} \rightarrow [(4,80\text{m}_{\text{comp}} + 3,50\text{m}_{\text{comp}} + 4,80\text{m}_{\text{comp}} + 3,50\text{m}_{\text{comp}}) \times 1,85\text{m}_{\text{alt}}] - [(1,00\text{m}_{\text{comp}} \times 1,72\text{m}_{\text{alt}}) \times 2] - [(0,80\text{m}_{\text{comp}} \times 1,05\text{m}_{\text{alt}})] = 26,43\text{m}^2$$

$$\text{Sala de aula D} \rightarrow [(6,05\text{m}_{\text{comp}} + 5,95\text{m}_{\text{comp}} + 6,05\text{m}_{\text{comp}} + 5,95\text{m}_{\text{comp}}) \times 1,85\text{m}_{\text{alt}}] - [(0,97\text{m}_{\text{comp}} \times 0,50\text{m}_{\text{alt}}) \times 3_{\text{und}}] - [(1,00\text{m}_{\text{comp}} \times 1,72\text{m}_{\text{alt}}) \times 3_{\text{und}}] - [(0,80\text{m}_{\text{comp}} \times 1,05\text{m}_{\text{alt}})] = 39,48\text{m}^2$$

$$\text{Sala dos professores} \rightarrow \{[(7,35\text{m}_{\text{comp}} + 5,18\text{m}_{\text{comp}} + 7,35\text{m}_{\text{comp}} + 5,18\text{m}_{\text{comp}}) \times 1,85\text{m}_{\text{alt}}] - [(1,51\text{m}_{\text{comp}} \times 1,35\text{m}_{\text{alt}}) \times 2_{\text{und}}] - [(0,80\text{m}_{\text{comp}} \times 1,05\text{m}_{\text{alt}})]\} = 41,44\text{m}^2$$

$$\text{Sala 01} \rightarrow \{[(5,95\text{m}_{\text{comp}} + 6,45\text{m}_{\text{comp}} + 2,00\text{m}_{\text{comp}} + 0,90\text{m}_{\text{comp}} + 0,15\text{m}_{\text{comp}} + 3,95\text{m}_{\text{comp}} + 5,40\text{m}_{\text{comp}}) \times 1,72\text{m}_{\text{alt}}] - [(2,00\text{m}_{\text{comp}} \times 1,20\text{m}_{\text{alt}})] - [(1,60\text{m}_{\text{comp}} \times 1,20\text{m}_{\text{alt}})] - [(0,80\text{m}_{\text{comp}} \times 1,05\text{m}_{\text{alt}}) \times 2_{\text{und}}]\} = 36,66\text{m}^2$$

$$\text{Sala 02} \rightarrow \{[(5,95\text{m}_{\text{comp}} + 6,50\text{m}_{\text{comp}} + 2,00\text{m}_{\text{comp}} + 0,90\text{m}_{\text{comp}} + 0,15\text{m}_{\text{comp}} + 3,95\text{m}_{\text{comp}} + 5,45\text{m}_{\text{comp}}) \times 1,72\text{m}_{\text{alt}}] - [(2,00\text{m}_{\text{comp}} \times 1,20\text{m}_{\text{alt}})] - [(1,60\text{m}_{\text{comp}} \times 1,20\text{m}_{\text{alt}})] - [(0,80\text{m}_{\text{comp}} \times 1,05\text{m}_{\text{alt}}) \times 2_{\text{und}}]\} = 36,83\text{m}^2$$

$$\text{Sala 03} \rightarrow \{[(6,85\text{m}_{\text{comp}} + 1,84\text{m}_{\text{comp}} + 1,50\text{m}_{\text{comp}} + 0,15\text{m}_{\text{comp}} + 2,40\text{m}_{\text{comp}} + 5,20\text{m}_{\text{comp}} + 4,21\text{m}_{\text{comp}}) \times 1,90] - [(0,80\text{m}_{\text{comp}} \times 1,05\text{m}_{\text{alt}}) \times 2_{\text{und}}] - [(1,20\text{m}_{\text{comp}} \times 1,20\text{m}_{\text{alt}}) \times 2_{\text{und}}]\} = 36,42\text{m}^2$$

$$\text{Sala 04} \rightarrow \{[(5,95\text{m}_{\text{comp}} + 6,15\text{m}_{\text{comp}} + 5,95\text{m}_{\text{comp}} + 6,15\text{m}_{\text{comp}}) \times 1,85\text{m}_{\text{alt}}] - [(1,00\text{m}_{\text{comp}} \times 1,72\text{m}_{\text{alt}}) \times 3_{\text{und}}] - [(0,80\text{m}_{\text{comp}} \times 1,05\text{m}_{\text{alt}})] - [(0,98\text{m}_{\text{comp}} \times 0,50\text{m}_{\text{alt}}) \times 3_{\text{und}}]\} = 37,30\text{m}^2$$

$$\text{Circulação acesso quadra} \rightarrow [(5,95\text{m}_{\text{comp}} + 5,95\text{m}_{\text{comp}}) \times 2,90\text{m}_{\text{alt}}] = 34,51\text{m}^2$$

$$\text{Área de serviço} \rightarrow [(4,66\text{m}_{\text{comp}} + 2,54\text{m}_{\text{comp}} + 4,66\text{m}_{\text{comp}} + 2,54\text{m}_{\text{comp}}) \times 2,70\text{m}_{\text{alt}}] - [(0,80\text{m}_{\text{comp}} \times 2,10\text{m}_{\text{alt}})] - [(0,98\text{m}_{\text{comp}} \times 0,55\text{m}_{\text{alt}})] = 36,66\text{m}^2$$

Externas 1 PAV

$$\begin{aligned} & [(36,48\text{m}_{\text{comp}} + 36,48\text{m}_{\text{comp}}) \times 2,90] - [(1,00\text{m}_{\text{comp}} \times 1,72\text{m}_{\text{alt}}) \times 8_{\text{und}}] - [(1,17\text{m}_{\text{comp}} \times 1,72\text{m}_{\text{alt}}) \times 4_{\text{und}}] - [(1,24\text{m}_{\text{comp}} \times 1,72\text{m}_{\text{alt}})] - [(1,51\text{m}_{\text{comp}} \times 1,72\text{m}_{\text{alt}}) \times 2_{\text{und}}] - [(2,00\text{m}_{\text{comp}} \times 1,20\text{m}_{\text{alt}}) \times 2_{\text{und}}] - [(1,62\text{m}_{\text{comp}} \times 1,12\text{m}_{\text{alt}}) \times 2_{\text{und}}] - [(1,00\text{m}_{\text{comp}} \times 1,47\text{m}_{\text{alt}}) \times 2_{\text{und}}] - \\ & [(1,00\text{m}_{\text{comp}} \times 0,60\text{m}_{\text{alt}})] - [(0,98\text{m}_{\text{comp}} \times 0,55\text{m}_{\text{alt}}) \times 2_{\text{und}}] - [(1,60\text{m}_{\text{comp}} \times 1,20\text{m}_{\text{alt}}) \times 2_{\text{und}}] - \\ & [(0,80\text{m}_{\text{comp}} \times 0,60\text{m}_{\text{alt}})] - [(2,45\text{m}_{\text{comp}} \times 2,80\text{m}_{\text{alt}})] = 159,44\text{m}^2 \end{aligned}$$

$$\begin{aligned} \text{Fachada} \rightarrow & [(36,48\text{m}_{\text{comp}} \times 2,90)] - [(2,53\text{m}_{\text{comp}} \times 0,90\text{m}_{\text{alt}})] - [(2,80\text{m}_{\text{comp}} \times 0,90\text{m}_{\text{alt}})] \\ & - [(3,77\text{m}_{\text{comp}} \times 0,90\text{m}_{\text{alt}})] - [(3,65\text{m}_{\text{comp}} \times 0,90\text{m}_{\text{alt}})] - [(2,30\text{m}_{\text{comp}} \times 0,90\text{m}_{\text{alt}})] - \\ & [(2,43\text{m}_{\text{comp}} \times 0,90\text{m}_{\text{alt}})] - [(3,70\text{m}_{\text{comp}} \times 0,90\text{m}_{\text{alt}}) \times 2_{\text{und}}] - [(3,02\text{m}_{\text{comp}} \times 0,90\text{m}_{\text{alt}})] - \\ & [(2,40\text{m}_{\text{comp}} \times 2,80\text{m}_{\text{alt}})] = xx \text{ m}^2 \times 2_{\text{lad}} = 77,29\text{m}^2 \times 2 = 154,59\text{m}^2 \end{aligned}$$

Circulações 1 PAV

$$\rightarrow (17,25\text{m}_{\text{comp}} \times 2,00\text{m}_{\text{comp}}) \times 1,85\text{m}_{\text{alt}}] - [(0,80\text{m}_{\text{comp}} \times 1,05\text{m}_{\text{alt}}) \times 2_{\text{und}}] - [(0,98\text{m}_{\text{comp}} \times 0,50\text{m}_{\text{alt}}) \times 6_{\text{und}}] - [(0,70\text{m}_{\text{comp}} \times 2,10\text{m}_{\text{alt}})] - [(0,98\text{m}_{\text{comp}} \times 0,48\text{m}_{\text{alt}})] = 28,11\text{m}^2$$

$$\rightarrow (6,10m_{comp} + 6,10m_{comp}) \times 1,85m_{alt}] - [(0,80m_{comp} \times 1,05m_{alt}) \times 2_{und}] = 20,86m^2$$

$$\rightarrow (11,15m_{comp} + 1,25m_{comp}) \times 1,85m_{alt}] - [(0,80m_{comp} \times 1,05m_{alt}) \times 3_{und}] - [(0,97m_{comp} \times 0,50m_{alt}) \times 3_{und}] - [(0,60m_{comp} \times 0,72m_{alt})] - [(1,03m_{comp} \times 1,20m_{alt})] = 17,30m^2$$

$$\rightarrow (32,23m_{comp} \times 1,85m_{alt}) - [(0,80m_{comp} \times 1,05m_{alt}) \times 6_{und}] = 54,59m^2$$

SUBTOTAL DO ITEM = 942,81m²

Teto 1º Pavimento

Salas de aula A → 42,84m²

Salas de aula B → 37,13m²

Salas de aula C → 47,60m² +

Salas de aula D → 36,00m²

Salas dos professores → 38,07m²

Sala 01 → 34,23m²

Sala 02 → 34,53m²

Sala 03 → 24,92m²

Salas de aula 4 → 36,59m²

Banheiro Masculino → 19,16m²

Banheiro Feminino → 18,58m²

Dispensa I → 11,34m²

Dispensa II → 4,03m²

Dispensa III → 8,45m²

Dispensa IIII → 4,40m²

Coordenação → 8,05m²

Banheiro coord. → 2,65m²

Secretaria → 16,80m²

Cozinha → 18,74m²

Área de serviço → 11,76m²

Teto Pátio/ Circulações → 127,80m²

Banheiro Sala 01/02 → 3,90m²

Trocador → 3,22m²

Banheiro Sala 03 → 3,32m²

Circulação acesso quadra → 6,31m²

SUBTOTAL DO ITEM = 600,42m²

Paredes 2º pavimento

Salas de aula E → [(5,95m_{comp} + 8,32m_{comp} + 5,95m_{comp} + 8,32m_{comp}) x 1,90m] - [(2,00m_{comp} x 1,20m_{alt}) x 2] - [(0,80m_{comp} x 1,05m_{alt})] = 48,59m²

Salas de aula 5 → [(5,95m_{comp} + 6,20m_{comp} + 5,95m_{comp} + 6,20m_{comp}) x 1,90m] - [(2,00m_{comp} x 1,20m_{alt}) x 2] - [(0,80m_{comp} x 1,05m_{alt})] = 40,53m²

Salas de aula F → [(5,95m_{comp} + 8,15m_{comp} + 5,95m_{comp} + 8,15m_{comp}) x 1,90m] - [(2,00m_{comp} x 1,20m_{alt}) x 2] - [(0,80m_{comp} x 1,05m_{alt})] = 47,94m²

Salas de aula G → [(5,95m_{comp} + 6,36m_{comp} + 5,95m_{comp} + 6,36m_{comp}) x 1,90m] - [(2,00m_{comp} x 1,20m_{alt}) x 2] - [(0,80m_{comp} x 1,05m_{alt})] = 41,14m²

Salas de aula H → [(5,95m_{comp} + 6,55m_{comp} + 5,95m_{comp} + 6,55m_{comp}) x 1,90m] - [(2,00m_{comp} x 1,20m_{alt}) x 2] - [(0,80m_{comp} x 1,05m_{alt})] = 41,86m²

Salas de aula I → [(4,21m_{comp} + 6,85m_{comp} + 4,21m_{comp} + 6,85m_{comp}) x 1,90m] - [(2,00m_{comp} x 1,20m_{alt}) x 2] - [(0,80m_{comp} x 1,05m_{alt})] = 36,39m²

Direção → [(3,77m_{comp} + 3,70m_{comp} + 3,77m_{comp} + 3,70m_{comp}) x 1,90m] - [(1,90m_{comp} x 1,33m_{alt})] - [(0,80m_{comp} x 1,05m_{alt})] - [(0,60m_{comp} x 1,05m_{alt})] = 24,56m²

Despensa → → [(4,01m_{comp} + 3,93m_{comp} + 4,01m_{comp} + 3,93m_{comp}) x 1,90m] - [(0,98m_{comp} x 0,55m_{alt})] - [(0,80m_{comp} x 1,05m_{alt})] = 28,79m²

SUBTOTAL DO ITEM = 309,80m²

Teto 2º Pavimento

Salas de aula E → 49,50m²

Salas de aula 5 → 36,89m²

Salas de aula F → 48,49m² +

Salas de aula G → 37,84m² +

Salas de aula H → 38,97m² +

Salas de aula I → 28,84m²

Direção → 14,26m²

Banheiro Direção → 4,82m²

Dispensa → 15,76m²

Teto Circulação 2 pav → 74,41m²

Paredes Externas 2º Pavimento

→ [(36,48m_{comp} + 36,48m_{comp}) x 3,60] – [(2,00m_{comp} x 1,20m_{alt}) x 10_{und}] = 238,66m²

SUBTOTAL DO ITEM = 588,44m²

Mureta 2º Pavimento

→ [(2,93m_{comp} + 1,29m_{comp} + 6,01m_{comp} + 1,12m_{comp} + 4,26m_{comp} + 6,30m_{comp}) x 1,00m_{alt}] = 21,91 m² x 2_{lados} = 43,82m²

Paredes externas (sala G/dispensa) 2 Pavimento → {[(5,43m_{comp} + 8,58m_{comp} + 1,35m_{comp} + 7,15 m_{comp} + 4,35m_{comp}) x 2,90m] – [(0,98m_{comp} x 0,55m_{alt})] - [(1,44m_{comp} x 1,33m_{alt}) x 2_{und}]} = 73,52m²

SUBTOTAL DO ITEM = 117,34m²

Cobertura

Platibanda cobertura → [(3,85m_{comp} + 0,15m_{comp} + 2,07m_{comp} + 4,14m_{comp} + 0,15m_{comp} + 1,28m_{comp} + 6,01m_{comp} + 5,41m_{comp} + 0,15m_{comp} + 8,28m_{comp} + 0,15m_{comp} + 0,15m_{comp} + 4,89m_{comp} + 5,80 m_{comp} + 4,03m_{comp} + 0,15m_{comp} + 0,15m_{comp} + 7,35m_{comp}) x 1,00m_{alt}] = 53,89m²

Área platibanda fachada → 45,00m²

SUBTOTAL DO ITEM = 98,89m²

TOTAL DO ITEM = 942,81m² + 600,42m² + 309,80m² + 588,44m² + 117,34m² + 98,89m² = 2657,70m²

12.04 – Pintura com tinta esmalte sintético, marcas de referência Suvinil, Coral ou Metalatex, inclusive fundo branco nivelador, em madeira, a duas demãos Pintura de madeira em porta

Banheiro Sala 01/02 → {[(0,80m x 2,10m) + (0,80m x 2,10m) + (0,80m x 2,10m) x 3_{lados}] = 15,12m²

Banheiro Sala 03 → [(0,80m x 2,10m) x 3_{lados}] = 5,04m²

TOTAL DO ITEM = 20,16m²

12.05 – Pintura com tinta esmalte sintético, marcas de referência Suvinil, Coral ou Metalatex, a duas demãos, inclusive fundo anticorrosivo a uma demão, em metal

Grade Pátio → $[(0,90m_{comp} + 2,79m_{comp} + 3,72m_{comp} + 2,31m_{comp} + 0,96m_{comp} + 3,34m_{comp}) \times 1,70m_{alt}] = 23,83m^2 \times 2_{lados} = 47,66m^2$

Portão Pátio → $(1,50m_{comp} \times 2,20m_{alt}) = 3,30m^2 \times 2_{lados} = 6,60m^2$

TOTAL DO ITEM = 54,20 m²

13.0 – SERVIÇOS COMPLEMENTARES

13.01 – Locação de andaime metálico para fachada - tipo torre (aluguel mensal)

Fachada fundos → 36,48m

TOTAL DO ITEM = 36,48 m²

13.02 – Índice de preço para remoção de entulho decorrente da execução de obras (Classe A CONAMA – NBR 10.004 - Classe II-B), incluindo aluguel da caçamba, carga, transporte e descarga em área licenciada

Demolição de revestimento com azulejos

Sala 01 → $[(6,45m_{comp} + 2,00m_{comp} + 5,95m_{comp} + 6,45m_{comp}) \times 1,05m_{alt}] - [(0,80m_{comp} \times 1,05m_{alt})] = 21,05m^2$

Sala 02 → $[(6,45m_{comp} + 2,00m_{comp} + 5,95m_{comp} + 6,45m_{comp}) \times 1,05m_{alt}] - [(0,80m_{comp} \times 1,05m_{alt})] = 21,05m^2$

Sala 03 → $\{[(4,21m_{comp} + 4,21m_{comp} + 6,85m_{comp} + 6,85m_{comp}) \times 1,05m_{alt}] - [(0,80m_{comp} \times 1,05m_{alt})]\} = 22,38m^2$

Sala 04 → $\{[(6,15m_{comp} + 6,15m_{comp} + 5,95m_{comp} + 5,95m_{comp}) \times 1,05m_{alt}] - [(0,80m_{comp} \times 1,05m_{alt})]\} = 24,57m^2$

Banheiro Masculino → $\{[(3,22m_{comp} + 3,22m_{comp} + 5,95m_{comp} + 5,95m_{comp}) \times 2,90m_{alt}] + [(1,18m_{comp} + 1,18m_{comp} + 1,18m_{comp} + 1,18m_{comp} + 1,18m_{comp} + 2,21m_{comp} + 1,06m_{comp} + 1,08m_{comp} + 1,08m_{comp}) \times 1,70m_{alt}] - [(0,80m_{comp} \times 2,10m_{alt}) + (0,98m_{comp} \times 0,55m_{alt}) + (0,98m_{comp} \times 0,55m_{alt})]\} = 51,68m^2$

Banheiro Feminino → $\{[(3,80m_{comp} + 3,80m_{comp} + 4,86m_{comp} + 4,86m_{comp}) \times 2,90m_{alt}] + [(1,41m_{comp} + 1,41m_{comp} + 1,41m_{comp} + 1,41m_{comp} + 1,41m_{comp} + 1,90m_{comp} + 0,93m_{comp}) \times 1,70m_{alt}]\} = 51,68m^2$

$$+ 0,93m_{comp} + 1,08m_{comp}) \times 1,70m_{alt}] - [(0,80m_{comp} \times 2,10m_{alt}) + (0,98m_{comp} \times 0,55m_{alt}) + (0,98m_{comp} \times 0,55m_{alt})] = 67,68m^2$$

$$\text{SUBTOTAL DO ITEM} = (208,41m^2 \times 0,05m_{larg}) = 10,42m^3$$

Demolição de alvenaria

$$\text{Sala 01/sala 02} \rightarrow [(3,95m_{comp} \times 2,77m_{alt}) \times 0,15m_{larg}] = 1,64m^3$$

$$\text{Mureta} \rightarrow [(1,75m_{comp} \times 0,82m_{alt}) \times 0,25m_{larg}] = 0,36m^3$$

$$\text{Sala 03} \rightarrow [(1,20m_{comp} \times 1,20m_{alt}) \times 2] + [(0,80m_{comp} \times 2,10m_{alt})] = 2,88m^2 + 1,68m^2 = 4,56m^2 \times 0,15m_{larg} = 0,68m^3$$

$$[(1,45m_{comp} \times 1,20m_{alt}) \times 2]$$

$$\text{SUBTOTAL DO ITEM} = 2,68m^3$$

Retirada de revestimento antigo em reboco m2 (local de retirada de ajulejo)

$$\text{Fachada Externa dos fundos} \rightarrow \{[(15,11m_{comp} \times 6,40m_{alt}) - [(2,00m_{comp} \times 1,20m_{alt}) \times 6_{und}] - [(1,60m_{comp} \times 1,20m_{alt}) \times 2_{und}] - [(0,80m_{comp} \times 0,60m_{alt})] - [(0,98m_{comp} \times 0,55m_{alt})]\} = 77,44m^2$$

$$\text{Beiral} \rightarrow \{[(13,36m_{comp} \times 0,50m_{alt}) \times 2_{lados}] = 13,36m^2$$

$$\text{Sala 01} \rightarrow [(6,45m_{comp} + 2,00m_{comp} + 5,95m_{comp} + 6,45m_{comp}) \times 1,05m_{alt}] - [(0,80m_{comp} \times 1,05m_{alt})] = 21,05m^2$$

$$\text{Sala 02} \rightarrow [(6,45m_{comp} + 2,00m_{comp} + 5,95m_{comp} + 6,45m_{comp}) \times 1,05m_{alt}] - [(0,80m_{comp} \times 1,05m_{alt})] = 21,05m^2$$

$$\text{Sala 03} \rightarrow \{[(4,21m_{comp} + 4,21m_{comp} + 6,85m_{comp} + 6,85m_{comp}) \times 1,05m_{alt}] - [(0,80m_{comp} \times 1,05m_{alt})]\} = 22,38m^2$$

$$\text{Sala 04} \rightarrow \{[(6,15m_{comp} + 6,15m_{comp} + 5,95m_{comp} + 5,95m_{comp}) \times 1,05m_{alt}] - [(0,80m_{comp} \times 1,05m_{alt})]\} = 24,57m^2$$

$$\text{Banheiro Masculino} \rightarrow \{[(3,22m_{comp} + 3,22m_{comp} + 5,95m_{comp} + 5,95m_{comp}) \times 2,90m_{alt}] + [(1,18m_{comp} + 1,18m_{comp} + 1,18m_{comp} + 1,18m_{comp} + 1,18m_{comp} + 2,21m_{comp} + 1,06m_{comp} + 1,08m_{comp} + 1,08m_{comp}) \times 1,70m_{alt}] - [(0,80m_{comp} \times 2,10m_{alt}) + (0,98m_{comp} \times 0,55m_{alt}) + (0,98m_{comp} \times 0,55m_{alt})]\} = 51,68m^2$$

$$\text{Banheiro Feminino} \rightarrow \{[(3,80m_{comp} + 3,80m_{comp} + 4,86m_{comp} + 4,86m_{comp}) \times 2,90m_{alt}] + [(1,41m_{comp} + 1,41m_{comp} + 1,41m_{comp} + 1,41m_{comp} + 1,41m_{comp} + 1,90m_{comp} + 0,93m_{comp}) \times 1,70m_{alt}]\} = 51,68m^2$$

$$+ 0,93m_{\text{comp}} + 1,08m_{\text{comp}}) \times 1,70m_{\text{alt}}] - [(0,80m_{\text{comp}} \times 2,10m_{\text{alt}}) + (0,98m_{\text{comp}} \times 0,55m_{\text{alt}}) + (0,98m_{\text{comp}} \times 0,55m_{\text{alt}})] = 67,68m^2$$

$$\text{SUBTOTAL DO ITEM} = (299,21 m^2 \times 0,03m_{\text{larg}}) = 8,98m^3$$

Demolição manual de concreto simples (EMOP 05.001.001)

$$\text{Rampa} \rightarrow (5,50m \times 1,25m \times 0,55m) = 3,78m^3$$

$$\text{Área Externa} \rightarrow (4,00m \times 2,70m \times 0,20m) = 2,16m^3$$

$$\text{SUBTOTAL DO ITEM} = 5,94m^3$$

$$\text{TOTAL DO ITEM} = 10,42m^3 + 2,68m^3 + 8,98m^3 + 5,94m^3 = 28,02m^3$$

13.03 – Limpeza geral da obra (edificação)

$$1^\circ \text{ Pavimento} \rightarrow (21,01m \times 36,48m) = 766,44m^2$$

$$2^\circ \text{ Pavimento} \rightarrow 392,06m^2$$

$$\text{TOTAL DO ITEM} = 766,44m^2 + 392,06m^2 = 1158,50m^2$$

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